Volume 1
Design Work Plan Narrative
Design Narrative
Design Basis & Appendix
Assumptions & Calculations
Capital and O&M Cost Estimate

Volume 2
QAPP w/Appendices
FSP w/Tables
VSP w/Tables
Construction QAP
Construction QCP

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HASP w/Attachments

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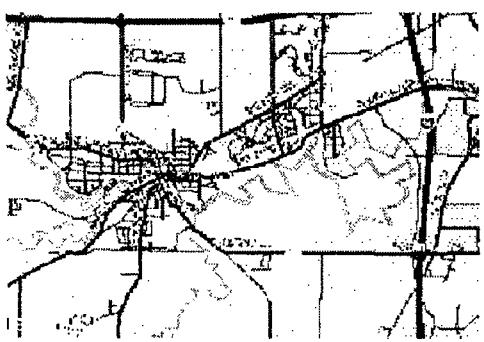
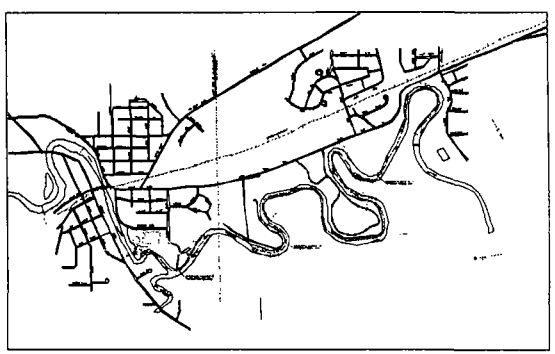
Design Specifications Sections
PCB Impacted Soil Plan
Water Management Plan & Diagram
Contingency Plan
Mitigation Plan
O&M Plan
Long Term Monitoring & Operation Plan
Remedial Action Work Plan
Stormwater Pollution Prevention Plan
Remedial Action Work Plan

100% DESIGN
PHASE I - SOURCE CONTROL
FOR THE
UPPER SHEBOYGAN RIVER



LOCATION MAP

SHEET INDEX



SITE MAP

REVISION	DESCRIPTION	DRAWN BY	CHECKED BY	DATE
IFC	ISSUED FOR CONSTRUCTION	PRK	DF	MAY 2004

CONSTRUCTION

ISSUE

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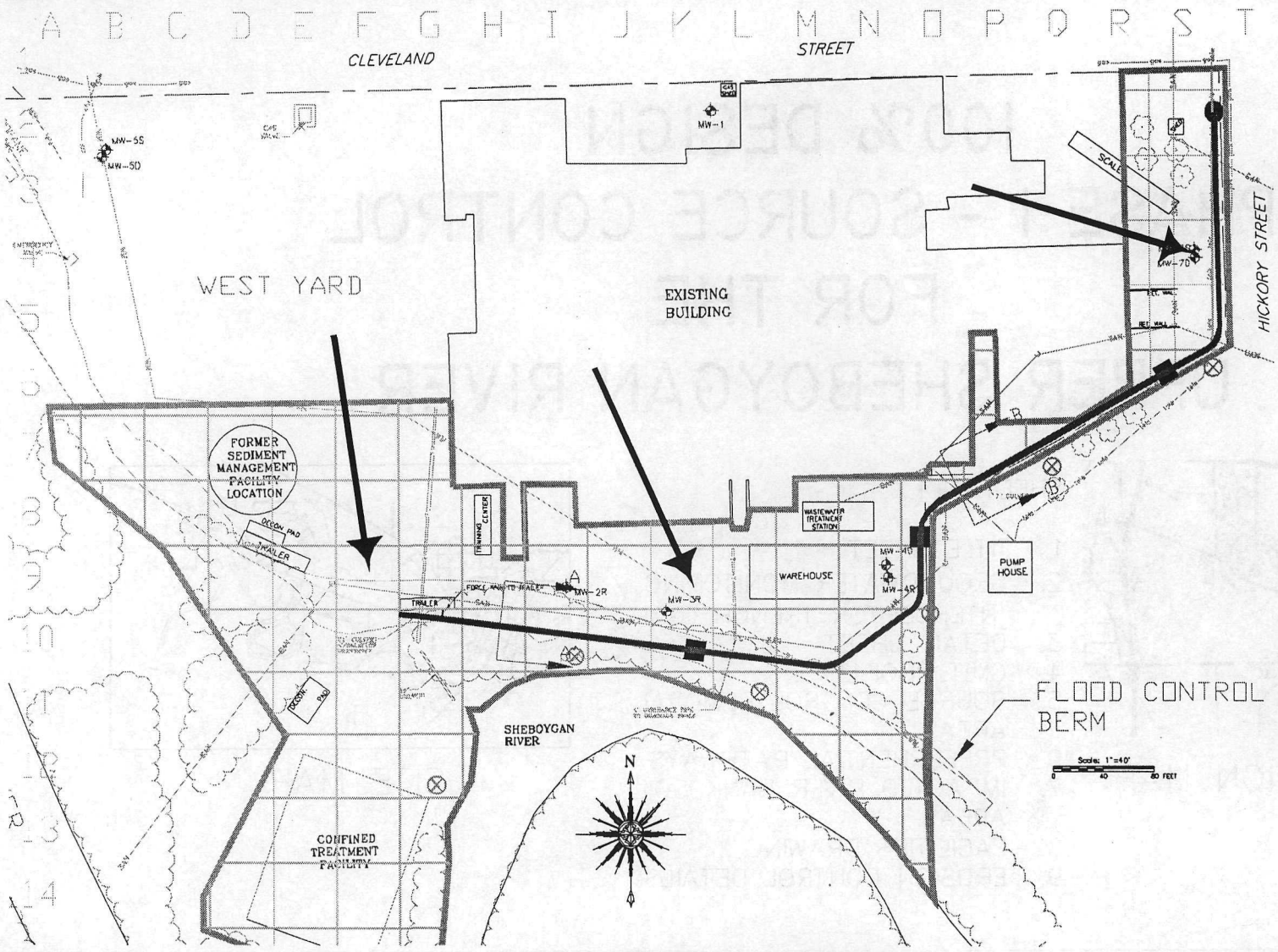
PREPARED FOR:

SHEBOYGAN RIVER PROJECT

SHEBOYGAN FALLS, WISCONSIN

TITLE PAGE

SCALE: NONE
PROJECT NUMBER: 02-010
SHEET NO.



LEGEND

- BUILDING BOUNDARY
- PROPERTY BOUNDARY
- GROUNDWATER MONITORING/ INTERCEPTOR TRENCH (SEE DETAIL)
- FLOOD CONTROL BERM
- FORCEMAIN (SEE DETAIL)
- SUMP W/ PUMP
- CLEAN OUT/MONITORING POINT
- EXISTING MONITORING WELL
- PROPOSED MONITORING WELL
- APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTES

1. CONTRACTOR TO PERFORM DEWATERING IN ACCORDANCE WITH APPROVED PLAN
2. CONTRACTOR SHALL MANAGE PCB IMPACTED MATERIAL IN ACCORDANCE WITH PCB-IMPACTED SOIL MANAGEMENT PLAN.
3. CONTRACTOR SHALL IMPLEMENT STORMWATER POLLUTION PREVENTION PLAN DURING FIELD ACTIVITIES
4. CONTRACTOR TO VERIFY LOCATIONS OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION
5. CONTRACTOR MAY ADJUST INTERCEPTOR TRENCH ALIGNMENT BASED ON FIELD CONDITIONS
6. CONTRACTOR IS RESPONSIBLE FOR PROVIDING AS-BUILT DOCUMENTATION ON FINAL TRENCH CONSTRUCTION
7. CONTRACTOR IS RESPONSIBLE TO PROTECT ALL EXISTING MONITORING WELLS DURING CONSTRUCTION ACTIVITIES AND IS RESPONSIBLE TO REPAIR AND/OR REPLACE ANY DAMAGED WELL OCCURRING DURING THE EXECUTION OF THE WORK AT NO COST TO THE OWNER.

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PREPARED FOR:

SHEBOYGAN RIVER PROJECT

SHEBOYGAN FALLS, WISCONSIN

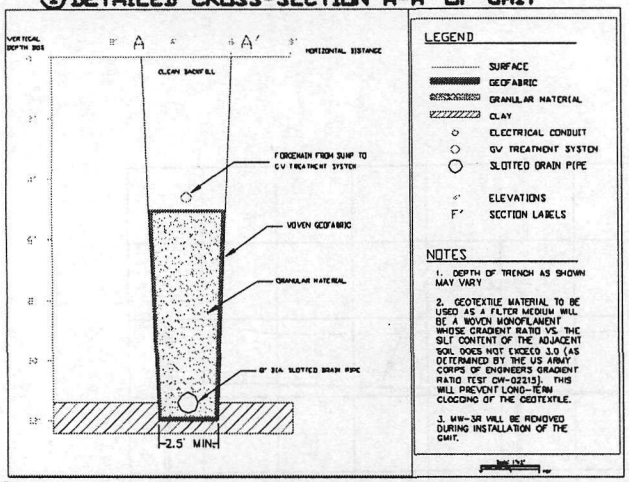
PHASE I SOURCE CONTROL GROUNDWATER INTERCEPTOR TRENCH AND MONITORING WELL LOCATION PLAN

SCALE: 1"=40'

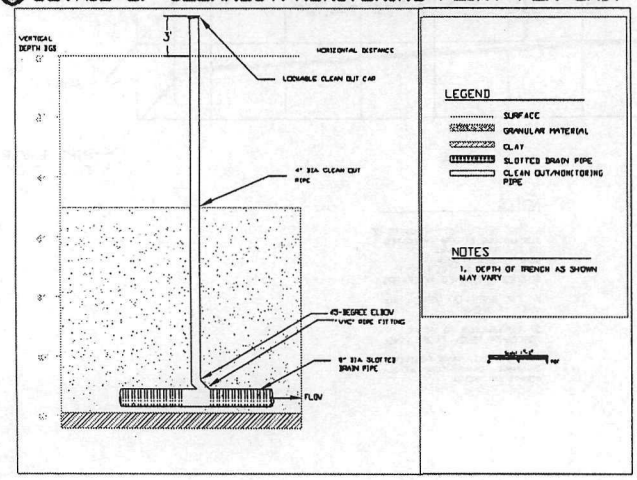
PROJECT NUMBER: 02-010

SHEET NO: 2

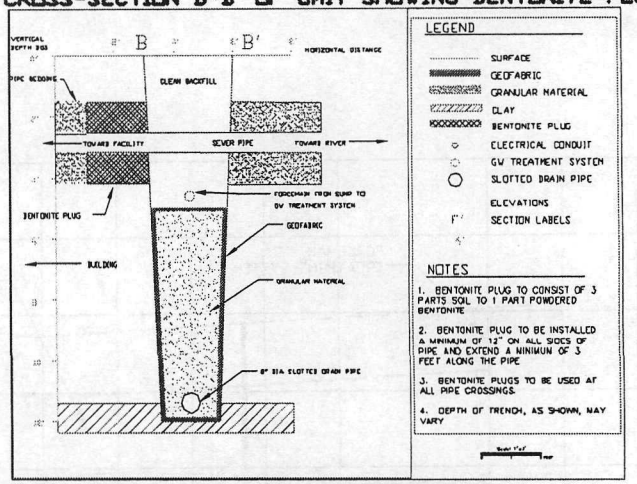
① DETAILED CROSS-SECTION A-A' OF GMIT



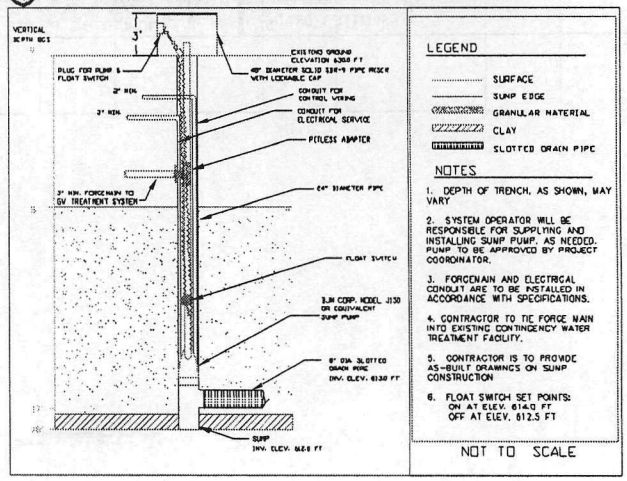
② DETAIL OF CLEANOUT/MONITORING POINT FOR GMIT



③ DETAILED CROSS-SECTION B-B' OF GMIT SHOWING BENTONITE PLUG



④ DETAILED CROSS-SECTION OF GMIT SUMP



NOT TO SCALE

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PREPARED FOR:

SHEBOYGAN RIVER PROJECT

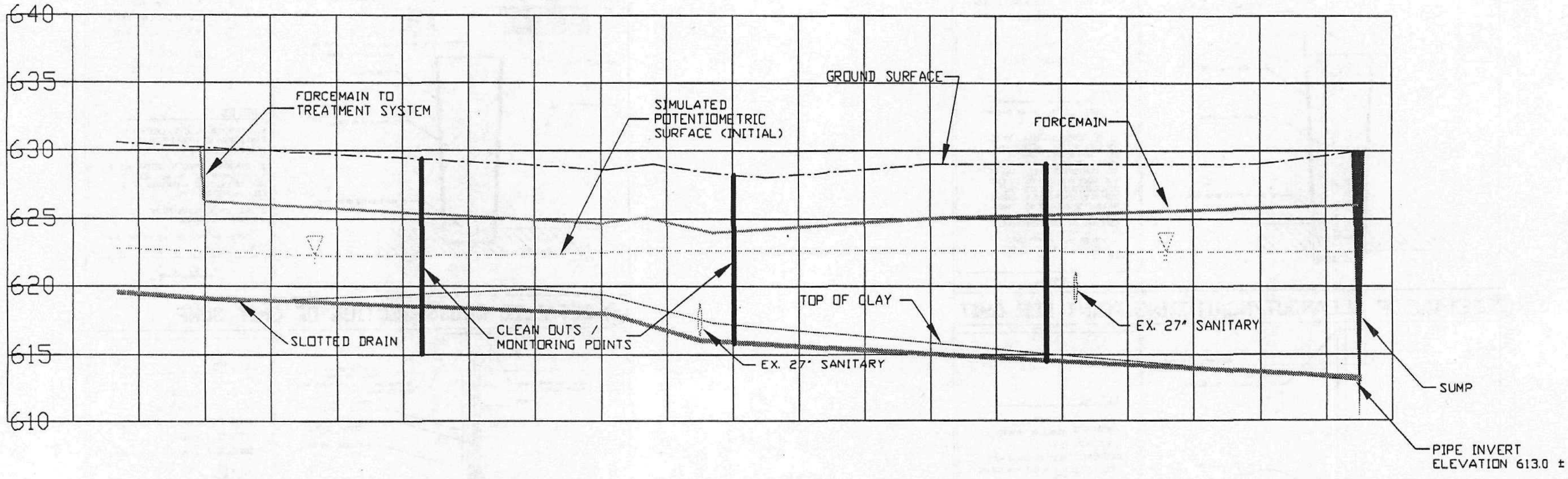
SHEBOYGAN FALLS, WISCONSIN

PHASE I SOURCE CONTROL DETAIL SHEET

SCALE: AS SHOWN

PROJECT NUMBER: 02-010

SHEET NO: 3



LEGEND

- EXISTING GROUND SURFACE
- GROUND WATER TABLE
- CLAY BOUNDARY
- SLOTTED DRAIN
- FORCE MAIN
- GROUNDWATER LEVEL
- 640 ELEVATION ABOVE MSL

NOTES

1. THE DEPTH AND THICKNESS OF SUBSURFACE STRATA INDICATED ON THE PROFILE WAS GENERALIZED FROM AND INTERPRETED BETWEEN TEST BORINGS PERFORMED BY OTHERS
2. THE DEPTH OF TRENCH MAY VARY AS SHOWN
3. CONTRACTOR TO INSTALL FORCEMAIN BELOW FROST LINE
4. PIPE SHALL HAVE POSITIVE DRAINAGE TOWARD SUMP AT ALL POINTS IN TRENCH

Scale: 1"=40'
0 40 80 FEET

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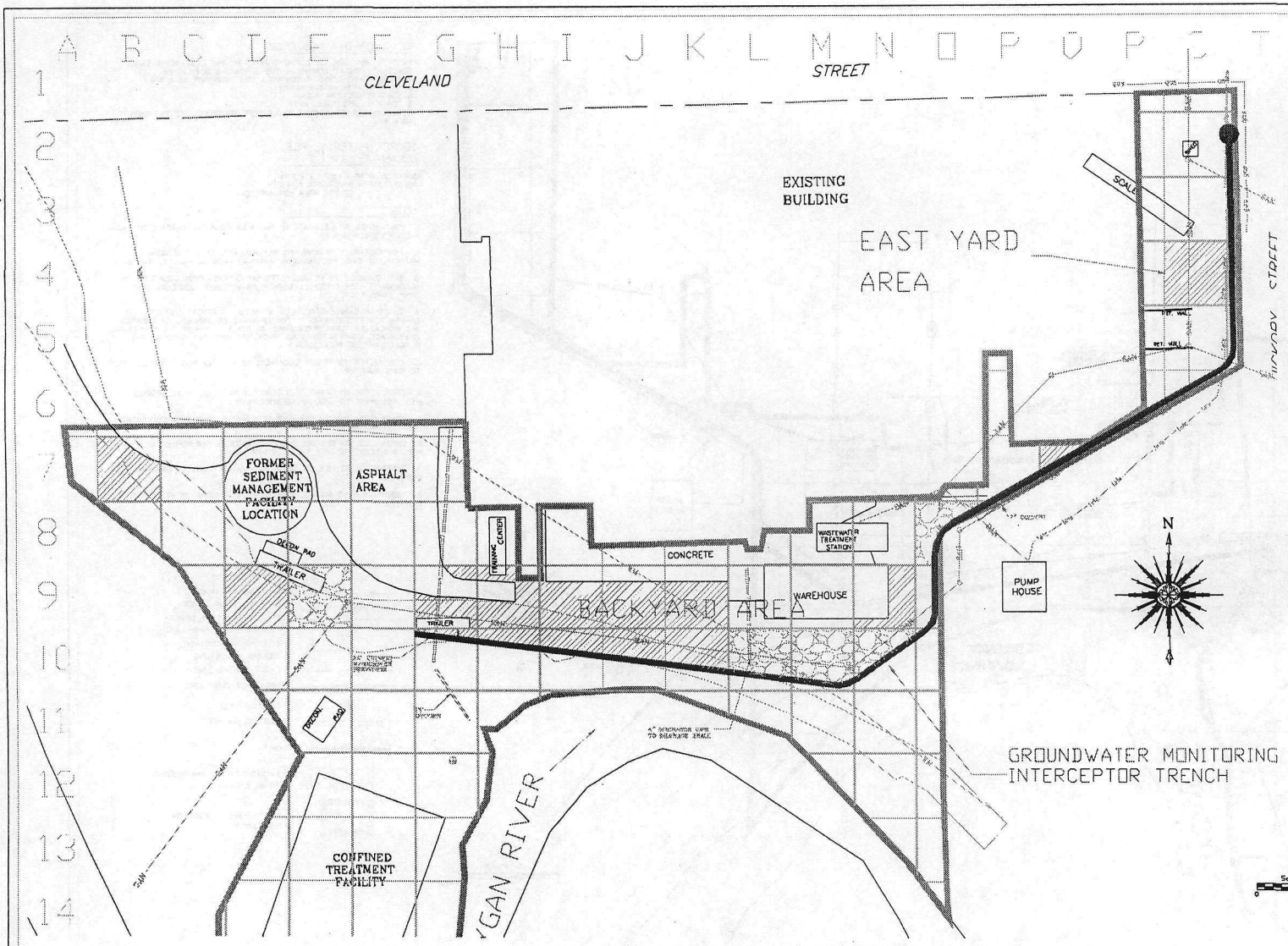
PREPARED FOR:

SHEBOYGAN RIVER PROJECT
SHEBOYGAN FALLS, WISCONSIN

PHASE I SOURCE CONTROL GROUNDWATER MONITORING / INTERCEPTOR TRENCH PROFILE

SCALE: AS SHOWN
PROJECT NUMBER: 02-010
SHEET NO: 4



DEVELOPMENT SEQUENCE

PRIOR TO ANY SOIL OR SEDIMENT REMOVAL, THE CONTRACTOR SHALL CONSTRUCT THE FOLLOWING IN THE GENERAL ORDER LISTED

A. EROSION AND SEDIMENT CONTROLS (SEE DRAWINGS #8 & #9)
B. CONSTRUCTION ACCESS ROADS
C. CONTRACTOR WORK AREA
D. CONTRACTOR STAGING AREA
E. CONTRACTOR DEWATERING AND RUNOFF CONTROLS (SEE DRAWINGS #8 & #9)

SOURCE MATERIAL PCB CLEAN-UP LEVELS

SURFACE (0 TO 1 FOOT) < 1 PPM
SUBSURFACE = NOT RELEVANT

NOTES

1. SOIL SAMPLES TO BE COLLECTED (BY OTHERS) FROM LOCATIONS AS SHOWN ON DRAWING IN ACCORDANCE WITH APPROVED WORK PLAN DESIGN DOCUMENTS (FSP, QAPP, SOPS, ETC.).

2. BASED ON SAMPLING RESULTS, IF PCBm > 1PPM, CONTRACTOR TO EXCAVATE 1 FOOT OF IMPACTED MATERIAL IN LOCATION AND BACKFILL WITH 1 FOOT OF CLEAN COVER.

3. CONTRACTOR TO VERIFY LOCATIONS OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.

4. CONTRACTOR TO MANAGE PCB IMPACTED MATERIAL IN ACCORDANCE WITH PCB-IMPACTED SOIL MANAGEMENT PLAN.

5. CONTRACTOR TO FILL OR GRADE EXCAVATED AREAS TO DRAIN AS REQUIRED.

6. SOURCE REMOVAL FOR GRIDS LOCATED BETWEEN THE GMIT AND THE RIVER (G-10 TO 0-10) WILL BE PER DRAWING #7.

LEGEND

- APPROXIMATE REMEDIATION AREA LIMIT
- GROUNDWATER MONITORING/INTERCEPTOR TRENCH (GMIT)
- PCB > 1 PPM
- PCB > 50 PPM
- GRIDS TO BE SAMPLED AT SURFACE

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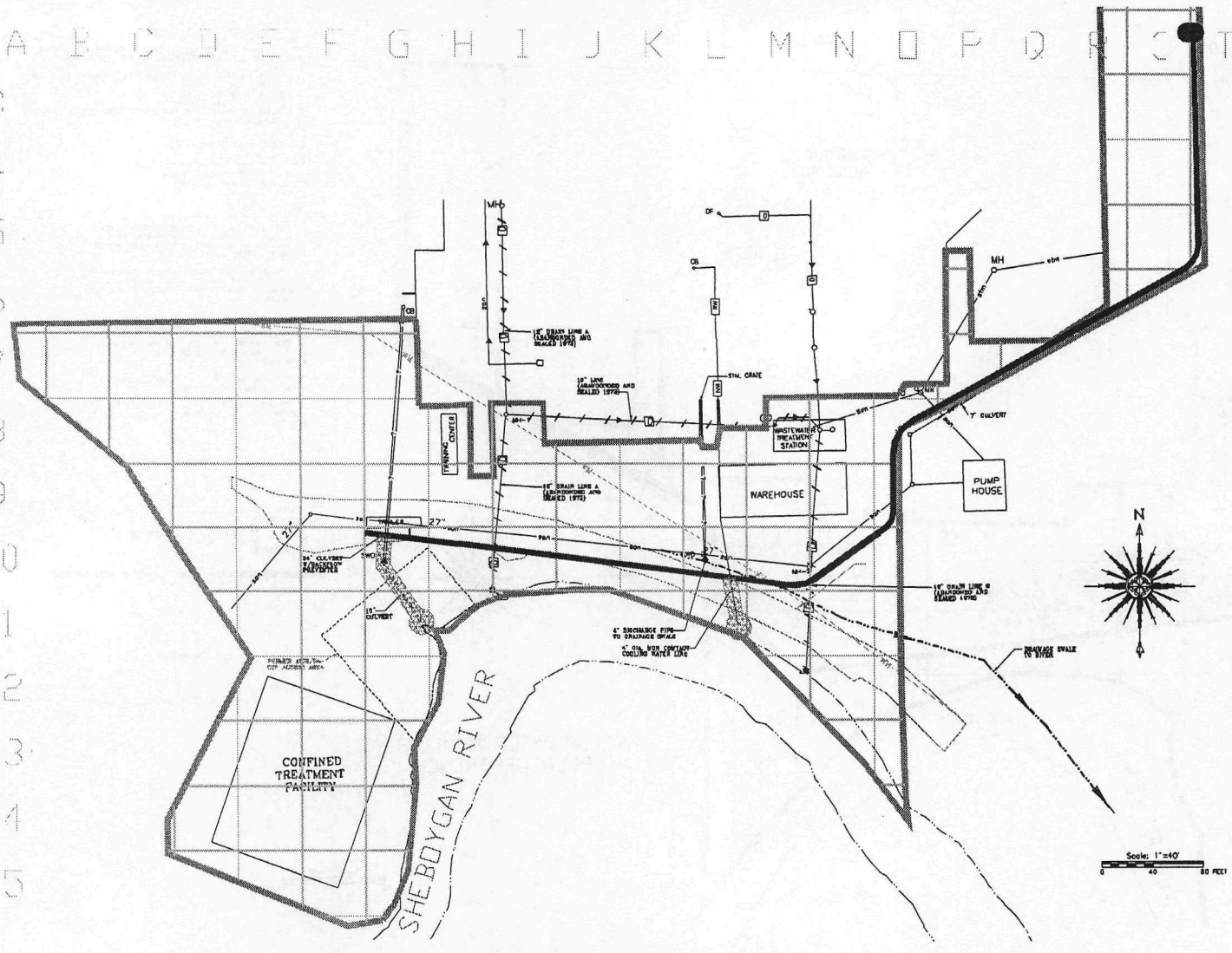
PREPARED FOR:

SHEBOYGAN RIVER PROJECT

SHEBOYGAN FALLS, WISCONSIN

PHASE I SOURCE CONTROL REMOVAL AREAS

SCALE: AS SHOWN
PROJECT NUMBER: 02-010
SHEET NO: 5



DEVELOPMENT SEQUENCE

PRIOR TO ANY SOIL OR SEDIMENT REMOVAL, THE CONTRACTOR SHALL CONSTRUCT THE FOLLOWING IN THE GENERAL ORDER LISTED

A. EROSION AND SEDIMENT CONTROLS (SEE DRAWINGS #8 & #9)
B. CONSTRUCTION ACCESS ROADS
C. CONTRACTOR WORK AREA
D. CONTRACTOR STAGING AREA
E. CONTRACTOR DEWATERING AND RUNOFF CONTROLS (SEE DRAWINGS #8 & #9)

SOURCE MATERIAL PCB CLEAN-UP LEVELS

SURFACE (0 TO 1 FOOT) < 1 PPM
SUBSURFACE = RIVERBANK < 10 PPM
SOURCE AREA NOT APPLICABLE

NOTES

1. CONTRACTOR TO EXCAVATE 10' RADIALLY FROM THE OUTFALL OF EACH PREFERENTIAL PATHWAY.

2. CONTRACTOR TO REMOVE AND REPLACE UTILITY AND BEDDING MATERIAL OF EACH PREFERENTIAL PATHWAY FROM OUTFALL TO THE GMIT.

3. SOIL SAMPLES TO BE COLLECTED (BY OTHERS) FROM LOCATIONS IN ACCORDANCE WITH APPROVED WORK PLAN DECISION DOCUMENTS (FSP, QAPP, SOPS, ETC.).

4. BASED ON SAMPLING RESULTS, IF PCBs > 1 PPM AT SURFACE, CONTRACTOR TO EXCAVATE 1 FOOT OF IMPACTED MATERIAL IN LOCATION AND REPEAT SAMPLING PROCEDURE. IF PCB > 10 PPM IN THE RIVERBANK SUBSURFACE, CONTRACTOR SHALL EXCAVATE IMPACTED MATERIAL AND REPEAT SAMPLING PROCEDURE.

5. CONTRACTOR TO VERIFY LOCATIONS OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.

6. CONTRACTOR TO MANAGE PCB IMPACTED MATERIAL IN ACCORDANCE WITH PCB-IMPACTED SOIL MANAGEMENT PLAN.

7. CONTRACTOR SHALL IMPLEMENT STORMWATER POLLUTION PREVENTION PLAN DURING FIELD ACTIVITIES.

8. CONTRACTOR TO RESTORE UTILITIES (STORMWATER PIPING) AS REQUIRED FROM THE GMIT TO THE RIVER.

9. CONTRACTOR TO FILL OR GRADE EXCAVATED AREAS TO DRAIN AS REQUIRED.

10. CONTRACTOR TO INSTALL RIPRAP ENERGY DISSIPATOR AT EACH OUTFALL.

LEGEND

- EXISTING DRAINAGE
- EXISTING STORM WATER
- EXISTING SANITARY SEWER
- EXISTING WATER MAIN LINE
- EXISTING NON-CONTACT COOLING WATER LINE
- EXISTING DRAIN LINE
- ABANDONED DRAIN LINE
- EXISTING WELL
- EXISTING CULVERT
- GMIT
- EXISTING PIPING AND BEDDING TO BE EXCAVATED
- APPROXIMATE REMEDIATION AREA LIMIT

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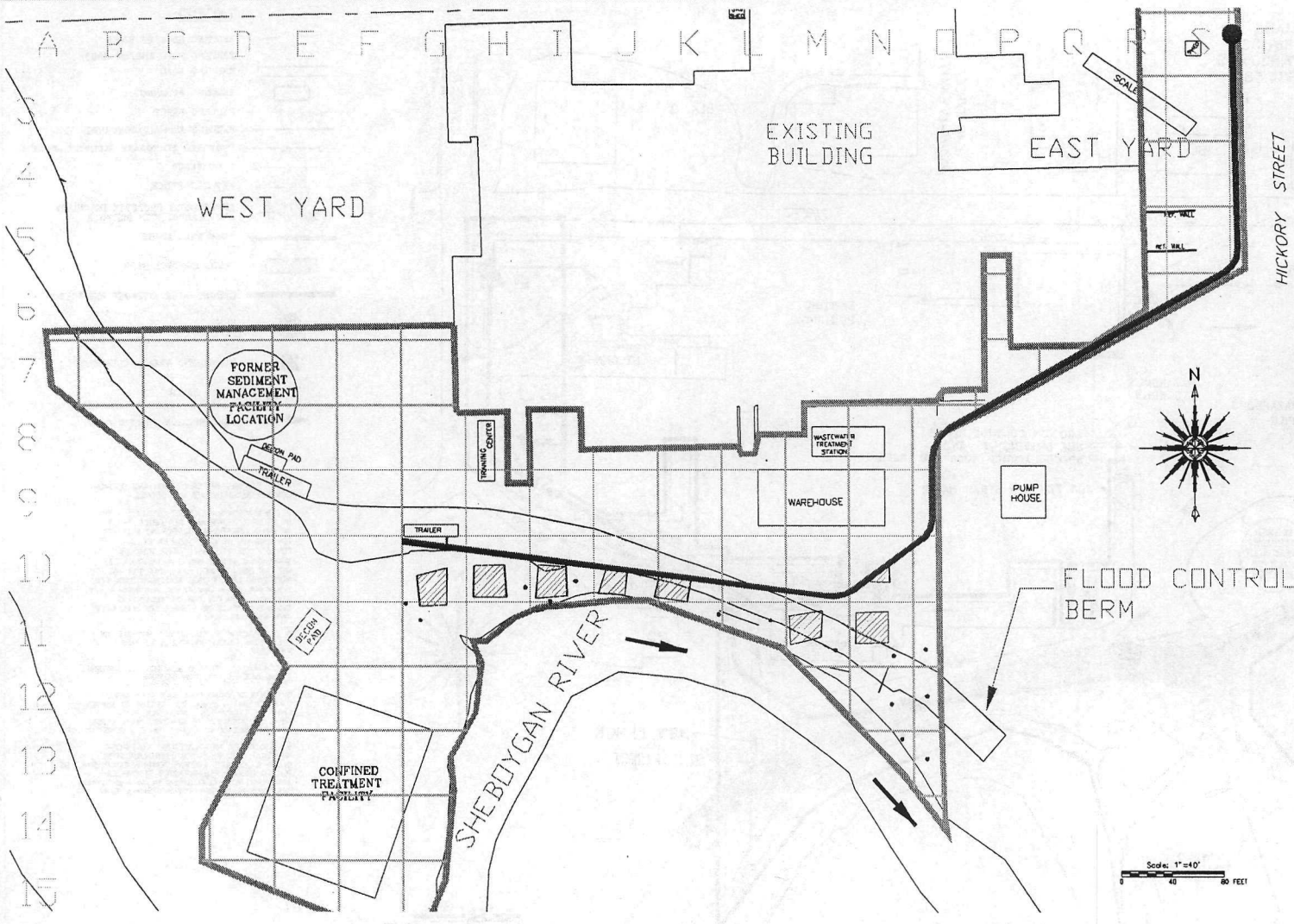
PREPARED FOR:

SHEBOYGAN RIVER PROJECT

SHEBOYGAN FALLS, WISCONSIN

PHASE I SOURCE CONTROL PREFERENTIAL PATHWAYS

SCALE: AS SHOWN
PROJECT NUMBER: 02-010
SHEET NO: 6



DEVELOPMENT SEQUENCE

PRIOR TO ANY SOIL OR SEDIMENT REMOVAL, THE CONTRACTOR SHALL CONSTRUCT THE FOLLOWING IN THE GENERAL ORDER LISTED:

A. EROSION AND SEDIMENT CONTROLS (SEE DRAWINGS #8 & #9)
B. CONSTRUCTION ACCESS ROADS
C. CONTRACTOR WORK AREA
D. CONTRACTOR STAGING AREA
E. CONTRACTOR DEWATERING AND RUNOFF CONTROLS (SEE DRAWINGS #8 & #9)

RIVERBANK MATERIAL PCB CLEAN-UP LEVELS

SURFACE (0 TO 1 FOOT) < 1 PPM
SUBSURFACE < 10 PPM

NOTES

1. SOIL SAMPLES TO BE COLLECTED (BY OTHERS) FROM LOCATIONS SHOWN ON DRAWINGS IN ACCORDANCE WITH APPROVED WORK PLAN DESIGN DOCUMENTS (VERIFICATION SAMPLING PLAN, FSP, QAPP, SOPS, ETC.).

2. BASED ON SAMPLING RESULTS: IF PCBs > 1 PPM AT SURFACE, CONTRACTOR TO EXCAVATE 1 FOOT OF IMPACTED MATERIAL IN LOCATION.
IF PCB > 10 PPM IN THE RIVERBANK SUBSURFACE, CONTRACTOR SHALL EXCAVATE IMPACTED MATERIAL BASED ON SAMPLING RESULTS.

3. CONTRACTOR TO VERIFY LOCATIONS OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.

4. CONTRACTOR TO MANAGE PCB IMPACTED MATERIAL IN ACCORDANCE WITH PCB-IMPACTED SOIL MANAGEMENT PLAN.

5. CONTRACTOR SHALL IMPLEMENT STORMWATER POLLUTION PREVENTION PLAN DURING FIELD ACTIVITIES.

6. CONTRACTOR TO FILL OR GRADE EXCAVATED AREAS TO DRAIN AS REQUIRED.

LEGEND

- APPROXIMATE REMEDIATION AREA LIMIT
- GROUNDWATER MONITORING (INTERCEPTOR TRENCH
- SOIL SAMPLE LOCATIONS (SEE NOTE 1)
- AREAS CONTAINING PCB > 1 PPM TO BE REMOVED (0 TO 1 FOOT). COLLECT VERIFICATION SAMPLES (BY OTHERS) IN ACCORDANCE WITH THE VSP.

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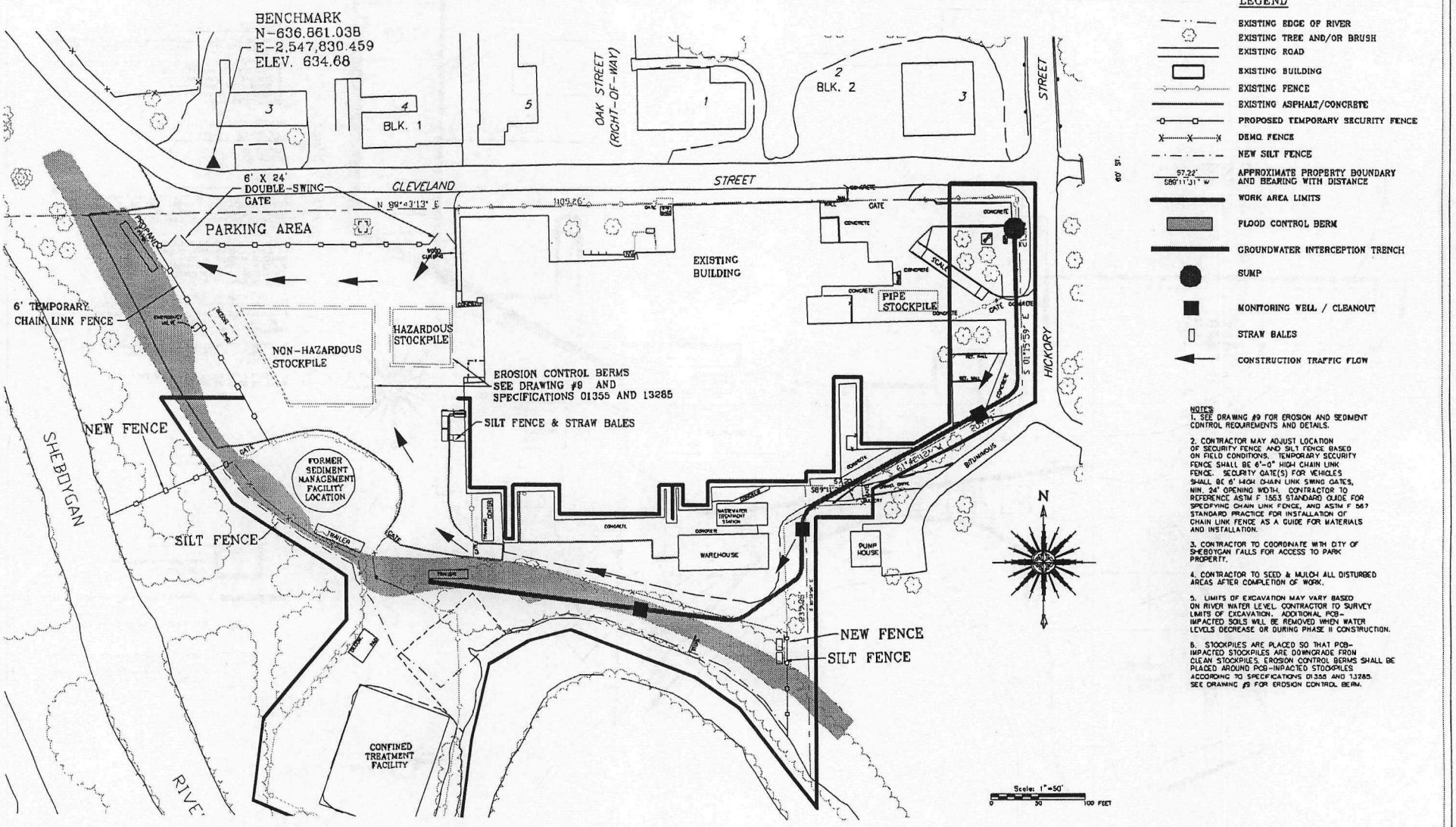
PREPARED FOR:

SHEBOYGAN RIVER PROJECT

SHEBOYGAN FALLS, WISCONSIN

PHASE I SOURCE CONTROL IMPACTED RIVER BANK SOIL AREAS

SCALE: AS SHOWN
PROJECT NUMBER: 02-010
SHEET NO: 7



LEGEND

- EXISTING EDGE OF RIVER
- EXISTING TREE AND/OR BRUSH
- EXISTING ROAD
- EXISTING BUILDING
- EXISTING FENCE
- EXISTING ASPHALT/CONCRETE
- PROPOSED TEMPORARY SECURITY FENCE
- DEMO. FENCE
- NEW SILT FENCE
- 57.22' S89°11'31" W — APPROXIMATE PROPERTY BOUNDARY AND BEARING WITH DISTANCE
- WORK AREA LIMITS
- FLOOD CONTROL BERM
- GROUNDWATER INTERCEPTION TRENCH
- SUMP
- MONITORING WELL / CLEANOUT
- STRAW BALES
- CONSTRUCTION TRAFFIC FLOW

NOTES:

1. SEE DRAWING #9 FOR EROSION AND SEDIMENT CONTROL REQUIREMENTS AND DETAILS.
2. CONTRACTOR MAY ADJUST LOCATION OF SECURITY FENCE AND SILT FENCE BASED ON FIELD CONDITIONS. TEMPORARY SECURITY FENCE SHALL BE 6'-0" HIGH CHAIN LINK FENCE. SECURITY GATE(S) FOR VEHICLES SHALL BE 6' HIGH CHAIN LINK SWING GATES, MIN. 24' OPENING WIDTH. CONTRACTOR TO REFERENCE ASTM F 1553 STANDARD GUIDE FOR SPECIFYING CHAIN LINK FENCE, AND ASTM F 567 STANDARD PRACTICE FOR INSTALLATION OF CHAIN LINK FENCE AS A GUIDE FOR MATERIALS AND INSTALLATION.
3. CONTRACTOR TO COORDINATE WITH CITY OF SHEBOYGAN FALLS FOR ACCESS TO PARK PROPERTY.
4. CONTRACTOR TO SEED & MULCH ALL DISTURBED AREAS AFTER COMPLETION OF WORK.
5. LIMITS OF EXCAVATION MAY VARY BASED ON RIVER WATER LEVEL. CONTRACTOR TO SURVEY LIMITS OF EXCAVATION. ADDITIONAL PCB-IMPACTED SOILS WILL BE REMOVED WHEN WATER LEVELS DECREASE OR DURING PHASE II CONSTRUCTION.
6. STOCKPILES ARE PLACED SO THAT PCB-IMPACTED STOCKPILES ARE DOWNGRADE FROM CLEAN STOCKPILES. EROSION CONTROL BERMS SHALL BE PLACED AROUND PCB-IMPACTED STOCKPILES ACCORDING TO SPECIFICATIONS 01355 AND 13285. SEE DRAWING #9 FOR EROSION CONTROL BERM.

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PREPARED FOR:

SHEBOYGAN RIVER
PROJECT

SHEBOYGAN FALLS, WISCONSIN

FACILITIES LAYOUT

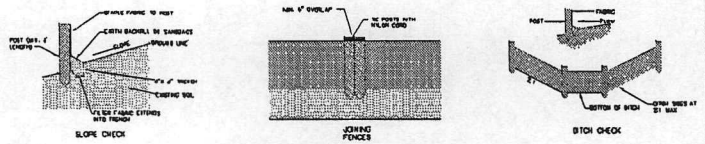
SCALE: AS SHOWN

PROJECT NUMBER: 02-010

SHEET NO: 8

⑥ SILT FENCE DETAILS

NO SCALE



NOTE: SILT FENCE TO BE INSTALLED PARALLEL TO SLOPE

EROSION AND SEDIMENT CONTROL

1. DURING AND POST CONSTRUCTION THE CONTRACTOR SHALL PROVIDE PROPER SOIL EROSION AND CONTROL MEASURES IN ACCORDANCE WITH:
   - -PROJECT SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES."
   - -PROJECT SPECIFICATION SECTION 02270 "EROSION AND SEDIMENT CONTROL."
   - -WDNR CONSTRUCTION SITE BEST MANAGEMENT PRACTICE HANDBOOK.
   - -WDOT EROSION CONTROL PRODUCT ACCEPTABILITY LISTS (PAL). AND
   - -AS DESCRIBED BY THE CURRENT APPLICABLE FEDERAL, STATE, OR LOCAL REQUIREMENTS.

2. THE CONTRACTOR SHALL PROVIDE SEDIMENT CONTROL AT:
   1. ALL POINTS WHERE ON-PROJECT WATERS LEAVE THE LIMITS OF THE PROJECT.
   2. ALL POINTS WHERE PROJECT WATERS ENTER PORTIONS OF COMPLETED UNDERGROUND PIPING.
   3. AROUND ANY AREA DESIGNATED FOR SOIL STOCKPILING OR MATERIAL STAGING.

ACCEPTED METHODS OF SPECIFYING AND MAINTAINING EROSION/SEDIMENT CONTROL INCLUDE BUT ARE NOT LIMITED TO: HAY/STRAW BALES, SEDIMENT BASINS, SILT FENCE, TEMPORARY GROUND COVER.

3. ANY DISTURBED AREA WITHIN 50 FEET OF A STREAM AND NOT AT FINAL GRADE SHALL HAVE TEMPORARY EROSION CONTROLS WITHIN 7 DAYS OF THE MOST RECENT DISTURBANCE IF THE AREA WILL REMAIN IDLE FOR MORE THAN 21 DAYS.

4. ANY DISTURBED AREAS NOT WITHIN 50 FEET OF A STREAM THAT WILL BE DORMANT FOR MORE THAN 21 DAYS, BUT LESS THAN ONE YEAR, SHALL HAVE TEMPORARY EROSION CONTROLS APPLIED WITHIN 7 DAYS OF THE MOST RECENT DISTURBANCE TO THE AREA.

5. IF AREAS WILL LIE DORMANT OVER THE WINTER, TEMPORARY EROSION CONTROLS SHALL BE APPLIED PRIOR TO THE ONSET OF WINTER.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY SEDIMENT DEVICES AT THE CONCLUSION OF CONSTRUCTION BUT NOT BEFORE GROWTH OF PERMANENT GROUND COVER (AMOUNT OF GROUND COVER NECESSARY TO BE DETERMINED BASED ON FIELD CONDITIONS).

7. IF AREAS WILL LIE DORMANT FOR ONE YEAR OR MORE, PERMANENT EROSION CONTROLS SHALL BE APPLIED WITHIN 14 DAYS OF THE MOST RECENT DISTURBANCE.

8. FOR ANY AREA WITHIN 50 FEET OF A STREAM AND AT FINAL GRADE, PERMANENT EROSION CONTROLS SHALL BE APPLIED WITHIN 2 DAYS OF REACHING FINAL GRADE.

9. FOR ANY OTHER AREAS THAT ARE AT FINAL GRADE, PERMANENT EROSION CONTROLS SHALL BE APPLIED WITHIN 14 DAYS OF REACHING FINAL GRADE WITHIN THAT AREA.

10. DISTURBED AREAS THAT HAVE NOT YET BEEN FINALLY STABILIZED SHALL BE INSPECTED AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS FOLLOWING THE END OF A STORM EVENT THAT IS 0.5 INCHES RAIN FALL OR GREATER.

11. THE CONTRACTOR SHALL PROVIDE ADEQUATE DRAINAGE (CONSISTENT WITH SEDIMENT/EROSION PRACTICES) OF THE WORK AREA AT ALL TIMES.

12. NECESSARY REPAIRS TO DAMAGED BARRIERS AND/OR REPLACEMENT OF SAME SHALL BE ACCOMPLISHED IMMEDIATELY.

13. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH RAINFALL OR WHEN LEVEL OF DEPOSIT REACHES APPROXIMATELY ONE-THIRD THE HEIGHT OF SILT FENCE AND ONE-HALF THE HEIGHT OF STRAW BALES.

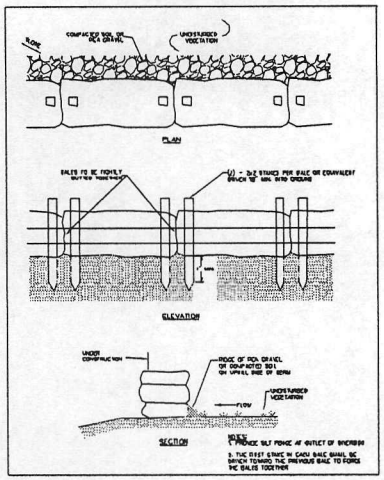
14. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIERS ARE NO LONGER REQUIRED SHALL BE REGRADED AS NECESSARY AND SEEDED.

15. EROSION CONTROL SILT FENCE SHALL BE INSTALLED DURING CONSTRUCTION ACTIVITIES AT A MINIMUM DISTANCE OF 3 FEET FROM THE TOE OF EACH EARTH MOUND OR ALONG PROPERTY LINE IF BOUND NOT PRESENT. SEE DETAIL 6.

16. THE CONSTRUCTION ENTRANCE SHALL BE LOCATED AS SHOWN ON THE SITE MAP. SEE DETAIL 9 FOR CONSTRUCTION DETAILS.

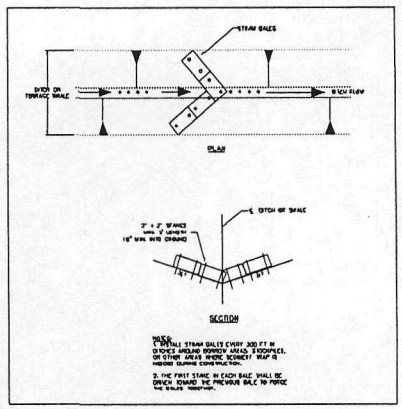
⑦ STRAW BALE DIVERSION BERM

NO SCALE



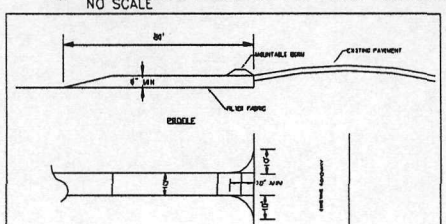
⑧ STRAW BALE SEDIMENT TRAP DETAIL

NO SCALE



⑨ CONSTRUCTION ENTRANCE DETAIL

NO SCALE



CONSTRUCTION ENTRANCE SPECIFICATIONS

1. STONE SIZE – 2" STONE SHALL BE USED, OR RECYCLED CONCRETE EQUIVALENT.

2. LENGTH – THE CONSTRUCTION ENTRANCE SHALL BE AS LONG AS REQUIRED TO STABILIZE HIGH TRAFFIC AREAS BUT NOT LESS THAN 50 FT. (EXCEPT ON SINGLE RESIDENCE LOT WHERE A 30 FT. MINIMUM LENGTH APPLIES).

3. THICKNESS – THE STONE LAYER SHALL BE AT LEAST 6" THICK.

4. WIDTH – THE ENTRANCE SHALL BE AT LEAST 10 FT WIDE, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.

5. BEDDING – A GEOTEXTILE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE. IT SHALL HAVE A GRAB TENSILE STRENGTH OF AT LEAST 200 LB. AND A MULLEN BURST STRENGTH OF AT LEAST 320 LB.

6. CULVERT – A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE IF NEEDED TO PREVENT SURFACE WATER FLOWING ACROSS THE ENTRANCE FROM BEING DIRECTED OUT ONTO PAVED SURFACES.

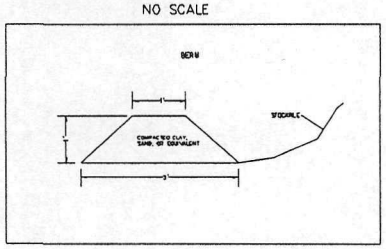
7. WATER BAR – A WATER BAR SHALL BE CONSTRUCTED AS PART OF THE CONSTRUCTION ENTRANCE IF NEEDED TO PREVENT SURFACE RUNOFF FROM FLOWING THE LENGTH OF THE CONSTRUCTION ENTRANCE AND OUT ONTO PAVED SURFACES.

8. MAINTENANCE – TOP DRESSING OF ADDITIONAL STONE SHALL BE APPLIED AS CONDITIONS DEMAND. MUD SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC ROADS, OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS, SHALL BE REMOVED IMMEDIATELY. REMOVAL SHALL BE ACCOMPLISHED BY SCRAPING AND SWEEPING.

9. CONSTRUCTION ENTRANCES SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES AND PREVENT OFF-SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION SITE SHALL BE RESTRICTED FROM MUDDY AREAS.

⑩ BERM

NO SCALE



REVISION	DESCRIPTION	DRAWN BY	CHECKED BY	DATE
IFC	ISSUED FOR CONSTRUCTION	PRK	DF	MAY 2004

CONSTRUCTION

ISSUE

ENGINEER SEAL

Pollution Risk Services
100 E-Business Way, Suite 210
Cincinnati, Ohio 45241
Phone: 513-489-2793
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PREPARED FOR:

SHEBOYGAN RIVER PROJECT

SHEBOYGAN FALLS, WISCONSIN

EROSION AND SEDIMENT CONTROL DETAILS

SCALE: AS SHOWN

PROJECT NUMBER: 02-010

SHEET NO: 9

POLLUTION RISK SERVICES
UPPER SHEBOYGAN RIVER PHASE I PROJECT SPECIFICATIONS
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PHASE I
DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01050
CONSTRUCTION STAKING

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INTRODUCTION

This guide specification was created specifically for the set of specifications. Unless noted otherwise, surveying work done shall be in general accordance with the State of Wisconsin Department of Transportation Facilities Development Manual Chapter 9 procedures.

PART 1 GENERAL

1.1 SUMMARY

Each proposed work area will be staked, by the CONTRACTOR. This staking will be used to delineate a local grid system for each area to regulate sampling and other work performed at the site. The Grid will be 50 feet x 50 feet and will be used for horizontal control only. Each local grid will be tied to an established station or as shown on the drawings. Vertical and elevation measurements will be relative to existing ground elevations only. Should the CONTRACTOR require restaking, this Work will be done as the CONTRACTOR'S schedule permits and at expense of CONTRACTOR. CONTRACTOR will provide one line of survey stakes for utility work and prepare separate cut sheets where multiple pipes are located in common trench. CONTRACTOR shall maintain survey stakes.

1.2 PRIMARY CONTROL MONUMENT(S)

Bench marks provided by local government agencies to establish primary vertical control for Work will be indicated on the final Drawings. These will be either official benchmarks tied into the state plane coordinate grid or local benchmarks established at known points (building corners, manhole lids, etc.). These are shown in relation to previously surveyed site elevation contours. Monuments or references for primary horizontal control for the construction of Work are indicated on Drawings. Preserve and maintain primary control monuments. Vertical tolerances for record drawing grade measurements shall be within +/- 0.1 feet unless noted otherwise.

1.3 PRIMARY LINE AND GRADE

Primary line and grade will be provided by CONTRACTOR and established by CONTRACTOR by means of stakes placed at site of Work.

1.3.1 Utilities Installed by Open Cut

Stakes for utilities installed by open cut construction will be set:

a. Offset to best serve CONTRACTOR.
b. Other settings as approved by the PROJECT MANAGER

1.3.2 Excavation and Embankments

Stakes for excavation and embankment will be set:

a. Offset to best serve CONTRACTOR.
b. Other settings as approved by the PROJECT MANAGER

1.3.3 Contractor Responsibilities

CONTRACTOR shall:

a. Set stakes as required to delineate the work site grid.
b. Arrange operations to avoid interference with establishment of primary lines and grades.
c. Check accuracy of line and grade by visual inspection, checks between stakes, and periodic checks (with surveying equipment) between primary control monuments and stakes.
d. Be responsible for protection and preservation of stakes. Restaking will be done as CONTRACTOR'S schedule permits, and at CONTRACTOR'S expense.

1.4 CONSTRUCTION LINE AND GRADE

The CONTRACTOR shall bear sole responsibility for correct transfer of construction lines and grades from primary line and grade points and for correct alignment and grade of completed Work based on lines and grades shown on Drawings. "Grades" are to mean relative depths below pre-construction grades at individual work locations.

1.4.1 Open Cut Construction of Utilities

Transfer line and grade for open cut construction of utilities from primary line and grade stakes to Work by field measurement or other acceptable methods.

1.5 LOT CORNERS AND SURVEY MONUMENTS

Protect lot corners and survey monuments shown on Drawings. If such marked corners and monuments are damaged by CONTRACTOR, replace by Registered Land Surveyor at CONTRACTOR'S expense.

--- END OF SECTION ---

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DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01055
SUPERVISING CONTRACTOR'S STATUS AND
RESPONSIBILITIES DURING CONSTRUCTION

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INTRODUCTION

This guide specification was created specifically for the set of specifications.

PART 1 ROLES AND RESPONSIBILITIES

1.1 PROJECT COORDINATOR

Pollution Risk Services (PRS) is the Project Coordinator. As Project Coordinator, PRS has accepted the role of the Settling Defendant for the Project. The Project Coordinator is also referred to as the Project Manager in the Project Specifications. The responsibilities of the PRS Project Coordinator include the following:

- Within the parameters of the Consent decree will define the work to be supervised and directed by the Supervising Contractor.

- Perform all administrative and decision-making activities, as well as provide necessary authorizations related to the project on behalf of PRS.

- Assure that all activities are performed in accordance with the requirements of applicable federal and state laws, regulations, and applicable or relevant and appropriate requirements (ARARs).

- Assume responsibility for ensuring that its contractors and subcontractors perform the Upper River Work as defined in the Consent Decree.

- Coordination of communications, submittals, and meetings with the USEPA Project Manager, PRS Project Manager, and WDNR Project Manager and other appropriate project team members.

- Obtain all necessary federal or state permits.

- Maintain contact with the USEPA, WDNR, and Supervising Contractor.

1.2 SUPERVISING CONTRACTOR

Responsibilities of the Supervising Contractor are to perform all tasks as Supervising Contractor as defined in the CD; this includes but is not limited to the following:

- Assist the Project Coordinator in the preparation, review and/or editing of submittals (plans, specifications, drawings, reports, contracts, etc...).

- Function as primary consultant to the Project Coordinator to ensure that all work performed is in accordance with the CD.

- Ensure all aspects of Upper River work to be performed by the Project Coordinator/Settling Defendant pursuant to Sections VI, VII, and XIV of the Consent Decree are in accordance with the approved project documents, the Consent Decree, the existing Chubb insurance policy, and performed in a manner that is protective of human health and the environment.

- Receive QC Reports, review and verify QC, prepare QA documentation for field and laboratory work performed.

1.3 CONTRACTOR

The Contractor is responsible for performing the work activities in accordance with the approved contract documents, the Consent Decree and Statement of Work, and in accordance with existing laws and regulations. The Contractor is also responsible for performing all tasks in accordance with the Site Health and Safety Plan and Quality Assurance Project Plan. The Contractor reports to the Supervising Contractor

who reports to the Project Coordinator.

PART 2 GENERAL

Not used.

PART 3 PRODUCTS

Not used.

PART 4 EXECUTION

Not used.

--- END OF SECTION ---

SUBDIVISION 01.1

01110 SUMMARY OF WORK
01155 ON-SITE SAFETY AND HEALTH

PHASE I
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01110
SUMMARY OF WORK

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INTRODUCTION

This guide specification has been modified from the original Corps of Engineers specification entitled "Section 01110N - SUMMARY OF WORK".

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

a. Health and Safety Plan
b. Data Quality Assurance Plan
c. Construction Quality Assurance Plan
d. Design Plan Drawings
e. Contingency Plan
f. Operations and Maintenance Plan
g. Record Drawings
h. Scope of Work
i. Project Schedule
j. Project Budget
k. Field Sampling Plan
l. Daily Reports
m. COE Permits
n. USEPA Permits
o. WDNR Permits
p. Utility Permits

1.2 WORK COVERED BY CONTRACT DOCUMENTS

1.2.1 Project Description

The work includes those tasks described in the Project Proposal and the Scope of Work as well as incidental related work, including but not limited to:

1. Mobilization of equipment, personnel, materials, and facilities as required
2. Construction staking
3. Clearing and Grubbing
4. Installation of Groundwater Monitoring Wells
5. Installation of an interceptor trench
6. Dewatering
7. Installation and maintenance of surface water and erosion control features
8. Management of regulated and non-regulated water
9. Removal, characterization, and transportation of PCB contaminated soils
10. Backfilling, compacting, and grading
11. Seeding

1.2.2 Location

The work shall be located along the Sheboygan River, at the Tecumseh Manufacturing Facility, approximately as indicated on the construction drawing.

1.3 EXISTING WORK

Remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work which remain. Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work.

1.4 LOCATION OF UNDERGROUND FACILITIES

The CONTRACTOR is responsible for locating all utilities prior to start of excavation. Verify the elevations of existing piping, utilities, and any type of underground obstruction not indicated or specified to be removed but indicated in locations to be traversed by piping, ducts, and other work to be installed. Verify elevations before installing new work closer than nearest manhole or other structure at which an adjustment in grade can be made.

1.4.1 Notification Prior to Excavation

Contact the Diggers Hotline 72 hours prior to excavating. CONTRACTOR is responsible for marking all utilities not marked by Diggers Hotline.

-- END OF SECTION --

PHASE I
DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01155
ON-SITE HEALTH AND SAFETY REQUIREMENTS

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INTRODUCTION

This guide specification was created specifically for the set of specifications.

PART 1 GENERAL

1.1 SUMMARY

Construction/remediation activities at remediation sites may place CONTRACTOR'S personnel and personnel of other CONTRACTOR'S hired by PROJECT MANAGER to perform Work at site, and public in potentially hazardous situations due to exposure to hazardous substances. All work shall be performed in accordance with the contractors approved health and safety plan.

1.1.1 40-Hour OSHA Training

Due to the scope of this contract, CONTRACTOR personnel performing work in locations where they may encounter hazardous substances are required to be 40-hour trained per 29 CFR 1910. Proof of 40-hour trained personnel (and subsequent 8-hour refresher training) shall be kept on file at the work site and in the CONTRACTOR'S home office.

1.1.2 Health and Safety Plan

For remediation activities, the CONTRACTOR will be required to prepare a Health and Safety Plan (HASP) in accordance with 29 CFR 1910. This plan will need to be submitted to the PROJECT MANAGER no later than 5 days prior to starting and no more than 10 days after Notice to Proceed.

1.1.3 OSHA Health Guidance Manual

The CONTRACTOR shall perform all work according to the Occupational Safety and

Health Guidance Manual (OSHA) 29 CFR 1910 and 29 CFR 1926 and all federal, state, and local safety and health regulations. The CONTRACTOR will be responsible for all site health and safety for construction activities. The PROJECT MANAGER shall be notified immediately of any accidents or conditions which could compromise safety. Typical concerns associated with remediation sites include at a minimum:

a. Exposure to Impacted Soil: This condition can exist when excavation exposes impacted soil or results in windborne dust and particulates.

1.1.4 Contractor's Responsibilities

It is the responsibility of the CONTRACTOR to determine if these conditions or other conditions exist on the site and act to ensure the health and safety of on-site personnel. Should the CONTRACTOR have any questions regarding health and safety, the CONTRACTOR should immediately contact the PROJECT MANAGER. CONTRACTOR is responsible for implementation and enforcement of safe Work practices including, but not limited to, personnel exposure to impacted soil, use of trenching, materials handling and drilling; operation of equipment; and safety of public during progress of Work.

1.2 QUALITY ASSURANCE

CONTRACTOR shall plan for and ensure personnel comply with basic provisions of OSHA Safety and Health Standards (29 CFR 1910) and General Construction Standards (29 CFR 1926) as appropriate. Comply with applicable laws and regulations of any public body having jurisdiction for safety of persons or property.

1.3 OPERATIONS AND EQUIPMENT SAFETY

CONTRACTOR is responsible for initiating, maintaining, and supervising safety precautions and programs in connection with Work. CONTRACTOR shall take necessary precautions for safety of employees on Project site and other persons and organizations who may be affected by Project. CONTRACTOR'S duties and responsibilities for safety in connection with Work shall continue until such time as Work is complete and PROJECT MANAGER has issued notice to CONTRACTOR that Work is complete.

1.4 HEALTH AND SAFETY

CONTRACTOR is responsible for implementation and enforcement of health and safety requirements and shall take necessary precautions and provide protection for following.

a. Personnel working on or visiting Project site, irrespective of employer.
b. Work and materials or equipment to be incorporated in Work area on- or off-site.
c. Other property at or adjacent to Project site.
d. Public exposed to job related operations or potential release of toxic or hazardous materials.

1.4.1 Health and Safety Plan Preparation

CONTRACTOR shall prepare site-specific Health and Safety Plan (HASP). If CONTRACTOR does not have capability to prepare HASP, CONTRACTOR shall employ consultants with appropriate capability. CONTRACTOR is solely responsible for adequacy of HASP's preparation, monitoring, management, and enforcement. At minimum, CONTRACTOR'S HASP shall address following:

a. Site description and history.
b. Project activities and coordination with other CONTRACTORs.
c. Hazard evaluation.
d. On-site safety responsibilities.
e. Work zones.
f. Personnel training and medical surveillance.
g. Atmospheric monitoring.
h. Personal protection, clothing, and equipment.
i. Emergency procedures.
j. Decontamination
k. Heat Stress/Cold Stress Management
l. Site Control Log

If PROJECT MANAGER contracts with others for Work on-site, CONTRACTOR shall amend HASP to include provisions for Work of others. CONTRACTOR shall also manage, enforce, and monitor health and safety activities of other CONTRACTORs during duration of other CONTRACTORs' work.

1.5 PROJECT MANAGER'S RESPONSIBILITIES

When PROJECT MANAGER is required to be present on Project site to perform PROJECT MANAGER services, PROJECT MANAGER will comply with CONTRACTOR's safety plans, programs, and procedures.

If PROJECT MANAGER determines CONTRACTOR's safety plans, programs, and procedures do not provide adequate protection for PROJECT MANAGER, PROJECT MANAGER may direct its employees to leave Project site or implement additional safeguards for PROJECT MANAGER's protection. If taken, these actions will be in furtherance of PROJECT MANAGER's responsibility to its employees only, and PROJECT MANAGER will not assume responsibility for protection of any other persons affected by Work.

If PROJECT MANAGER observes situations which appear to have potential for immediate and serious injury to persons, PROJECT MANAGER may warn persons who appear to be affected by such situations. Such warnings, if issued, shall be given based on general humanitarian concerns, and PROJECT MANAGER will not, by issuance of any such warning, assume any responsibility to issue future warnings or any general responsibility for protection of persons affected by Work.

1.6 SUBMITTALS

Submit copies of HASP to PROJECT MANAGER no later than 5 days prior to starting and no more than 10 days after Notice to Proceed. Work on-site shall not proceed until HASP has been submitted to PROJECT MANAGER. Submittal of CONTRACTOR's HASP to PROJECT MANAGER is to inform PROJECT MANAGER so they can comply with HASP during performance of their on-site responsibilities as described in Contract Documents. Submittal of CONTRACTOR'S HASP shall neither impose on PROJECT MANAGER the responsibility for adequacy of HASP nor relieve CONTRACTOR from full responsibility therefore.

* * * END OF SECTION * * *

SUBDIVISION 01.2

01200 PROJECT MEETTINGS

PHASE I
DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01200
PROJECT MEETINGS

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INTRODUCTION

This guide specification has been modified from the original Corps of Engineers specification entitled "Section 01200 – PROJECT MEETINGS".

PART 1 GENERAL

1.1 SUMMARY

1.1.1 Preconstruction Conference

PROJECT MANAGER will schedule and conduct preconstruction conference in accordance with General Conditions and this section.

1.1.2 Other Meetings

CONTRACTOR shall schedule and administer progress meetings, construction foreman's meetings, and specially called meetings throughout progress of Work. CONTRACTOR shall:

a. Prepare agenda for meetings.
b. Distribute written notice of specially called meetings minimum of 1 working day(s) in advance of meeting date.
c. Make physical arrangements for meetings.
d. Preside at meetings.
e. Record minutes; include significant proceedings and decisions.
f. Prepare formal minutes and distribute within 3 working days after each meeting:

1. To meeting participants.
2. To parties affected by decisions made at meeting.

3. Furnish the PROJECT MANAGER with 3 copies of minutes.

1.1.3 Attendance

Representatives of CONTRACTOR, SUBCONTRACTORS, and Suppliers attending meetings shall be qualified and authorized to act on behalf of entity each represents. PROJECT MANAGER may attend meetings.

1.2 PRECONSTRUCTION CONFERENCE

The Preconstruction Conference shall be held within 30 days after Effective Date of Contract, but before the CONTRACTOR starts Work at site. The location of the meeting will be at a place to be selected by the PROJECT MANAGER. Attendance at the Preconstruction Conferences shall be as follows (when applicable):

a. CONTRACTOR's Manager.
b. CONTRACTOR's Resident Superintendent.
c. CONTRACTOR's "hands-on" person designated by CONTRACTOR to submit Shop Drawings to PROJECT MANAGER.
d. SUBCONTRACTORS' or suppliers' representatives CONTRACTOR may desire to invite or PROJECT MANAGER may request.
e. PROJECT MANAGER's representatives.
f. Local utility representatives, if applicable.

1.2.1 Preconstruction Conference Format

Suggested format includes, but are not be limited to following.

a. Project Safety.
b. Presentation of preliminary progress schedule and preliminary schedule of Shop Drawing and sample.
c. Check of required bonds and insurance policies prior to Notice to Proceed.
d. Liquidated damages.
e. Procedures for handling submittals such as substitutions and Shop Drawings.
f. O&M submittal procedures (if any).
g. Direction of correspondence, and coordinating responsibility.
h. Weekly and monthly progress meetings.
i. Equal opportunity requirements.
j. Laboratory and field testing requirements.
k. Provisions for inventory of material stored on-site or off-site if off-site storage is authorized.
l. Schedule of values, application for progress payment, and progress payment procedures.
m. Change Order procedures.

1.3 MONTHLY PROGRESS MEETINGS

Monthly Progress meetings shall be held at the CONTRACTOR's field office. Attendance at the Monthly Progress meetings shall be as follows (when applicable):

a. Project Manager
b. Supervising Contractor

c. CONTRACTOR's Project Manager.
d. CONTRACTOR's Resident Superintendent.
e. Electrical, HVAC, plumbing, mechanical, earth work, and other affected SUBCONTRACTORS.
f. HSO and CQA Staff
g. Other parties concerned with current progress or involved in planning, coordination or performance of future activities.

1.3.1 Monthly Progress Meeting Agenda

An agenda containing specific subjects to be discussed shall be provided to each attendee and to the PROJECT MANAGER at least 7 days before meeting. Suggested agenda items include, but are not be limited to following.

a. Review minutes of previous meeting.
b. Review Work progress since previous meeting.
c. Project safety concerns.
d. Field observations, problems, conflicts.
e. Problems impeding Construction Schedule.
f. Review of off-site fabrication, delivery schedules.
g. Corrective measures and procedures to regain conformance with projected Construction Progress Schedule.
h. Revisions to Construction Progress Schedule.
i. Issues raised by PROJECT MANAGER.
j. Progress and schedule for succeeding Work period.
k. Coordination of schedules.
l. Review and update submittal schedules.
m. Maintenance of quality standards.
n. Pending changes and substitutions.
o. Review proposed changes for:

1. Effect on Construction Progress Schedule and completion date.
2. Effect on other contracts of Project.

p. Other business.

1.4 CONSTRUCTION FOREMAN'S MEETING

The Construction Foreman's meeting shall be held weekly in the CONTRACTOR's field office. Attendance at the Construction Foreman's meeting shall be as follows (when applicable):

a. Resident superintendent.
b. SUBCONTRACTOR's foremen.

1.4.1 Construction Foreman's Meeting Agenda

Suggested agenda items include, but are not be limited to following.

a. Review agenda of Work progress since previous meeting.
b. Proposed progress and schedule for succeeding Work period.
c. Field observations, problems, conflicts.
d. Problems which affect construction schedule.

--- END OF SECTION ---

SUBDIVISION 01.3

01300 SUBMITTALS
01355 GENERAL ENVIRONMENTAL PROTECTION
01356 STORM WATER POLLUTION PREVENTION MEASURES

PHASE I
DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01300
SUBMITTALS

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INTRODUCTION

This guide specification has been modified from the original Corps of Engineers specification entitled "Section 01300 – Submittals".

PART 1 GENERAL

1.1 SUMMARY

Section includes procedural requirements for Work-related submittals:

a. Construction Progress Schedules.
b. Shop Drawings.
c. Product Data.
d. Samples.
e. Operation and maintenance (O&M) information, if any.
f. Schedule of values.
g. Other miscellaneous submittals.

1.2 DEFINITIONS

1.2.1 Submittal for Review

Any submittal for PROJECT MANAGER'S will be reviewed in accordance with Contract Documents.

1.2.2 Submittal for Record

Submittal for inclusion into PROJECT MANAGER'S records prior to Substantial Completion. Submittal will not be reviewed by PROJECT MANAGER.

1.3 CONSTRUCTION PROGRESS SCHEDULES

a. Provide separate horizontal bar for each operation or activity.
b. Horizontal Time Scale: Identify first Work day of each week.
c. Scale and spacing to allow space for notations and future revisions.
d. Arrange listings in order of start of each item of Work.

1.3.1 Construction Progress Schedule Elements

Show complete sequence of construction by activity. Show dates for beginning and completion of each major element of construction and installation dates for major items.

1.3.2 Schedule Revisions

a. As needed to reflect changes in progress of Work.
b. Indicate progress of each activity at date of submittal.
c. Show changes occurring since previous submittal of schedule, such as:

    1. Major changes in scope.
    2. Activities modified since previous submittal.
    3. Revised projections of progress and completion.
    4. Other identifiable changes.

d. Provide narrative report to define following.

    1. Problem areas and anticipated delays and their impact on schedule.
    2. Corrective action recommended and its effect.
    3. Effect of changes on schedules of other Contractors.

1.4 SHOP DRAWINGS AND PRODUCT DATA

1.4.1 Contractor's Responsibilities

a. Review Shop Drawings and Product Data prior to submittal.
b. Determine and verify the following:

    1. Field measurements.
    2. Field construction criteria.
    3. Catalog numbers and similar data.
    4. Conformance with Specifications.

c. Coordinate each submittal with requirements of Work and Contract Documents.
d. Notify PROJECT MANAGER in writing, at time of submittal, of deviations in submittals from requirements of Contract Documents.

e. Begin no fabrication or Work requiring submittals until return of submittals with PROJECT MANAGER'S approval.
f. Submittals received but not requested in Specifications shall be returned without review.
g. Submit 6 copies unless specified otherwise.

1.4.2 Submittal Requirements

a. Date of submittal and dates of previous submittals.
b. Project title and number.
c. Contract identification.
d. Names of:

1. CONTRACTOR.
2. Supplier.
3. Manufacturer.

e. Identification of product, with identification numbers, and Drawing and Specification section numbers.
f. Field dimensions, clearly identified.
g. Identify details required on Drawings and in Specifications.
h. Show manufacturer and model number, give dimensions, and provide clearances.
i. Relation to adjacent or critical features of Work or materials.
j. Applicable standards, such as ASTM or Federal Specification numbers. Identification of deviations from Contract Documents.
k. Identification of revisions on resubmittals.
l. 8-in. by 3-in. blank space for CONTRACTOR and PROJECT MANAGER stamps.
m. CONTRACTOR'S stamp, signed, certifying to review of submittal, verification of products, field measurement, field construction criteria, and coordination of information within submittal with requirements of Work and Contract Documents.

1.4.3 Resubmittal Requirements

a. Comply with submittal requirements.
b. Make corrections or changes in submittals required by PROJECT MANAGER. Resubmit until approved.
c. Identify on transmittal form submittal is resubmission.
d. Shop Drawings and Product Data:

1. Revise initial drawings or data and resubmit as specified for initial submittal.
2. Indicate changes made other than those requested by PROJECT MANAGER.

1.4.4 Distribution

Distribute reproductions of Shop Drawings and copies of Product Data which carry PROJECT MANAGER'S approval stamp to following.

a. Job site file.
b. Record documents file.

1.4.5 Project Manager's Duties

a. Review submittals in accordance with schedule.
b. Affix stamp and signature, and indicate requirements for resubmittal or approval of

submittal.
c. Return submittals to CONTRACTOR.
d. For planning purposes, PROJECT MANAGER has set a goal of 14 days for review of submittals from the day received in PROJECT MANAGER'S office.

1.5 TEST RESULTS

Test results shall be submitted as follows:

a. Submit test results required in Specification sections.
b. Submit test results upon completion of test or submittal of results from testing laboratory.
c. Test results are submitted for review of conformance with specified requirements and information.

1.6 GUARANTEE, WARRANTIES, MAINTENANCE AGREEMENTS AND WORKMANSHIP BONDS

Refer to Specification sections for requirements. Submittal is considered final when submittal is received by PROJECT MANAGER.

1.7 ACTION ON SUBMITTALS

1.7.1 General:

a. Except for submittals for record and similar purposes, where action and return on submittal is required or requested, PROJECT MANAGER will review each submittal, mark with appropriate action, and return. Where submittal must be held for coordination, PROJECT MANAGER will so advise CONTRACTOR without delay.
b. PROJECT MANAGER will stamp each submittal with action stamp, appropriately marked with submittal action.

1.7.2 Notification of Insufficient Information:

a. If information submitted is not sufficient to complete review of submittal, PROJECT MANAGER will send transmittal to CONTRACTOR notifying CONTRACTOR that additional information is required.
b. Submittal will not be returned. Submittal will be placed in an "on hold" status until CONTRACTOR provides additional information.

PART 2 EXECUTION

2.1 SUBMITTAL REQUIREMENTS

Deliver submittals to PROJECT MANAGER. Provide complete copies of required submittals as follows and as required by the individual specification sections.

a. Construction Progress Schedule
b. Shop Drawings and Product Data
c. Test Results
d. Certifications
e. Other Submittals (as required)

– END OF SECTION –

PHASE I
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01355
ENVIRONMENTAL PROTECTION

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INTRODUCTION

This guide specification has been modified from the original Corps of Engineers specification entitled "Section 01355A – Environmental Protection".

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

a. 33 CFR 328 Definitions
b. 40 CFR 68 Chemical Accident Prevention Provisions
c. 40 CFR 152 - 186 Pesticide Programs
d. 40 CFR 260 Hazardous Waste Management System: General
e. 40 CFR 261 Identification and Listing of Hazardous Waste
f. 40 CFR 262 Standards Applicable to Generators of Hazardous Waste
g. 40 CFR 279 Standards for the Management of Used Oil
h. 40 CFR 302 Designation, Reportable Quantities, and Notification
i. 40 CFR 355 Emergency Planning and Notification
j. 49 CFR 171 - 178 Hazardous Materials Regulations
k. U.S. ARMY CORPS OF ENGINEERS (USACE) EM 385-1-1 (1996) U.S. Army Corps on Engineers Safety and Health Requirements Manual
l. WETLAND MANUAL Corps of Engineers Wetlands Delineation Manual Technical Report Y-87-1
m. Wisconsin Administrative Code

1.2 DEFINITIONS

1.2.1 Environmental Pollution and Damage

Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally and/or historically.

1.2.2 Environmental Protection

Environmental protection is the prevention/control of pollution and habitat disruption that may occur to the environment during construction. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2.3 Contractor Generated Hazardous Waste

CONTRACTOR generated hazardous waste means materials that, if abandoned or disposed of, may meet the definition of a hazardous waste. These waste streams would typically consist of material brought on site by the CONTRACTOR to execute work, but are not fully consumed during the course of construction. Examples include, but are not limited to, excess paint thinners (i.e. methyl ethyl ketone, toluene etc.), waste thinners, excess paints, excess solvents, waste solvents, and excess pesticides, and impacted pesticide equipment rinse water.

1.2.4 Surface Discharge

The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm sewers, creeks, and/or "waters of the United States" and would require a permit to discharge water from the governing agency.

1.2.5 Waters of the United States

All waters which are under the jurisdiction of the Clean Water Act, as defined in 33 CFR 328.

1.2.6 Wetlands

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, and bogs.

1.3 GENERAL REQUIREMENTS

The CONTRACTOR shall minimize environmental pollution and damage that may occur as the result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of this contract. The CONTRACTOR shall comply with all applicable environmental Federal, State, and local laws and regulations. The CONTRACTOR shall be responsible for any delays resulting from failure to comply with environmental laws and regulations.

1.4 SUBCONTRACTORS

The CONTRACTOR shall ensure compliance with this section by SUBCONTRACTORS.

1.5 SUBMITTALS

The following shall be submitted:

Environmental Protection Plan

1.6 ENVIRONMENTAL PROTECTION PLAN

Prior to commencing construction activities or delivery of materials to the site, the CONTRACTOR shall submit an Environmental Protection Plan for review and approval by the PROJECT MANAGER. The purpose of the Environmental Protection Plan is to present a comprehensive overview of known or potential environmental issues which the CONTRACTOR must address during construction. Issues of concern shall be defined within the Environmental Protection Plan as outlined in this section. The CONTRACTOR shall address each topic at a level of detail commensurate with the environmental issue and required construction task(s). Topics or issues which are not identified in this section, but which the CONTRACTOR considers necessary, shall be identified and discussed

after those items formally identified in this section. Prior to submittal of the Environmental Protection Plan, the CONTRACTOR shall meet with the PROJECT MANAGER for the purpose of discussing the implementation of the initial Environmental Protection Plan; possible subsequent additions and revisions to the plan including any reporting requirements; and methods for administration of the CONTRACTOR's Environmental Plans. The Environmental Protection Plan shall be current and maintained onsite by the CONTRACTOR.

1.6.1 Compliance

No requirement in this Section shall be construed as relieving the CONTRACTOR of any applicable Federal, State, and local environmental protection laws and regulations. During Construction, the CONTRACTOR shall be responsible for identifying, implementing, and submitting for approval any additional requirements to be included in the Environmental Protection Plan.

1.6.2 Contents

The environmental protection plan shall include, but shall not be limited to, the following:

a. Name(s) of person(s) within the CONTRACTOR's organization who is (are) responsible for ensuring adherence to the Environmental Protection Plan.
b. Name(s) of person(s) responsible for manifesting hazardous waste to be removed from the site, if applicable.
c. Name(s) of person(s) responsible for training the CONTRACTOR's environmental protection personnel.
d. Drawings showing locations of proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on the site.
e. Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plan shall include measures to minimize the amount of mud transported onto paved public roads by vehicles or runoff.
f. The Spill Control plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by 40 CFR 68, 40 CFR 302, 40 CFR 355, and/or regulated under State or Local laws and regulations. This plan shall include as a minimum:

    1. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the PROJECT MANAGER and the local Fire Department in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity is released to the environment. The plan shall contain a list of the required reporting channels and telephone numbers.

2. The name and qualifications of the individual who will be responsible for implementing and supervising the containment and cleanup.
3. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.
4. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.
5. The methods and procedures to be used for expeditious contaminant cleanup.

k. A non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
l. An air pollution control plan detailing provisions to assure that dust, debris, materials, trash, etc., do not become air borne and travel off the project site.
m. A waste water management plan that identifies the methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as sediment dewatering, decontamination water, clean-up water, dewatering of ground water, hydrostatic test water, and water used in flushing of lines. If disposal is to a sanitary sewer, the plan shall include documentation that the Waste Water Treatment Plant Operator has approved the flow rate, volume, and type of discharge.

1.6.3 Appendix

Copies of all environmental permits, permit application packages, approvals to construct, notifications, certifications, reports, and termination documents shall be attached, as an appendix, to the Environmental Protection Plan.

1.7 PROTECTION FEATURES

This paragraph supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, and IMPROVEMENTS. Prior to start of any onsite construction activities, the CONTRACTOR and the PROJECT MANAGER shall make a joint condition survey. Immediately following the survey, as shown on the submittal schedule, the CONTRACTOR shall prepare a brief report including a plan describing the features requiring protection under the provisions of the Contract Clauses, which are not specifically identified on the drawings as environmental features requiring protection along with the condition of trees, shrubs and grassed areas immediately adjacent to the site of work and adjacent to the CONTRACTOR's assigned storage area and access route(s), as applicable. This survey report shall be signed by both the CONTRACTOR and the PROJECT MANAGER upon mutual agreement as to its accuracy and completeness. The CONTRACTOR shall protect those environmental features included in the survey report and any indicated on the drawings, regardless of interference which their preservation may cause to the CONTRACTOR's work under the contract.

1.8 SPECIAL ENVIRONMENTAL REQUIREMENTS

The CONTRACTOR shall comply with the special environmental requirements listed in the Storm Water Pollution Prevention Plan and included at the end of this section.

1.9 ENVIRONMENTAL ASSESSMENT OF CONTRACT DEVIATIONS

Any deviations, requested by the CONTRACTOR, from the drawings, plans and specifications which may have an environmental impact will be subject to approval by the PROJECT MANAGER and may require an extended review, processing, and approval time. The PROJECT MANAGER reserves the right to disapprove alternate methods, even if they are more cost effective, if the PROJECT MANAGER determines that the proposed alternate method will have an adverse environmental impact.

1.10 NOTIFICATION

The PROJECT MANAGER will notify the CONTRACTOR in writing of any observed noncompliance with Federal, State or local environmental laws or regulations, permits, and other elements of the CONTRACTOR's Environmental Protection plan. The CONTRACTOR shall, after receipt of such notice, inform the PROJECT MANAGER of the proposed corrective action and take such action when approved by the PROJECT MANAGER. The PROJECT MANAGER may issue an order stopping all or part of the work until satisfactory corrective action has been taken. If necessary, this work stoppage will be reflected in a revised project schedule.

PART 2 EXECUTION

2.1 ENVIRONMENTAL PERMITS AND COMMITMENTS

The CONTRACTOR shall be responsible for obtaining and complying with all environmental permits and commitments required by Federal, State, Regional, and local environmental laws and regulations.

2.2 LAND RESOURCES

The CONTRACTOR shall confine all activities to areas defined by the drawings and specifications. Prior to the beginning of any construction, the CONTRACTOR shall identify any land resources to be preserved within the work area. Except in areas indicated on the drawings or specified to be cleared, the CONTRACTOR shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without approval. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. The CONTRACTOR shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs. Stone, soil, or other materials displaced into uncleared areas shall be removed by the CONTRACTOR.

2.2.1 Work Area Limits

Prior to commencing construction activities, the CONTRACTOR shall mark the areas that need not be disturbed under this contract. Isolated areas within the general work area which are not to be disturbed shall be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, any markers shall be visible in the dark. The CONTRACTOR's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

2.2.2 Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques. The CONTRACTOR shall restore landscape features damaged or destroyed during construction operations outside the limits of the approved work area.

2.2.3 Erosion and Sediment Controls

The CONTRACTOR shall be responsible for providing erosion and sediment control measures in accordance with Federal, State, and local laws and regulations. The erosion and sediment controls selected and maintained by the CONTRACTOR shall be such that water quality standards are not violated as a result of the CONTRACTOR's construction activities. The area of bare soil exposed at any one time by construction operations should be kept to a minimum. The CONTRACTOR shall construct or install temporary and permanent erosion and sediment control best management practices (BMPs). BMPs may include, but not be limited to, vegetation cover, stream bank stabilization, slope stabilization, silt fences, construction of terraces, interceptor channels, sediment traps, inlet and outfall protection, diversion channels, and sedimentation basins. The CONTRACTOR's best management practices shall also be in accordance with the National Pollutant Discharge Elimination System (NPDES), Wisconsin Pollutant Discharge Elimination System (WPDES), and the Storm Water Pollution Prevention Plan (SWPPP). Any temporary measures shall be removed after the area has been stabilized.

2.2.4 Contractor Facilities and Work Areas

The CONTRACTOR's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas designated on the drawings or as directed by the PROJECT MANAGER. Temporary movement or relocation of CONTRACTOR facilities shall be made only when approved. Erosion and sediment controls shall be provided for on-site borrow and spoil areas to prevent sediment from entering nearby waters. Temporary excavation and embankments for plant and/or work areas shall be controlled to protect adjacent areas.

2.3 WATER RESOURCES

The CONTRACTOR shall monitor construction activities to prevent pollution of surface and ground waters. Toxic or hazardous chemicals shall not be applied to soil or vegetation unless otherwise indicated. All water areas affected by construction activities shall be monitored by the CONTRACTOR. For construction activities immediately adjacent to impaired surface waters, the CONTRACTOR shall be capable of quantifying sediment or pollutant loading to that surface water when required by State or Federally issued Clean Water Act permits.

2.3.1 Cofferdams, Diversions, and Dewatering Operations

Construction operations for dewatering and removal of cofferdams shall be controlled at all times to maintain compliance with existing State water quality standards and designated uses of the surface water body.

2.3.2 Wetlands

The CONTRACTOR shall not enter, disturb, destroy, or allow discharge of contaminants into any wetlands except as authorized herein. The

CONTRACTOR shall be responsible for the protection of wetlands shown on the drawings in accordance with paragraph ENVIRONMENTAL PERMITS, REVIEWS, AND APPROVALS. Authorization to enter specific wetlands identified shall not relieve the CONTRACTOR from any obligation to protect other wetlands within, adjacent to, or in the vicinity of the construction site and associated boundaries.

2.4 AIR RESOURCES

Equipment operation, activities, or processes performed by the CONTRACTOR shall be in accordance with all Federal and State air emission and performance laws and standards.

2.4.1 Particulates

Dust particles shall be controlled at all times, including weekends, holidays and hours when work is not in progress. The CONTRACTOR shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause the Federal, State, and local air pollution standards to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type, or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp at all times. The CONTRACTOR must have sufficient, competent equipment available to accomplish these tasks. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs. The CONTRACTOR shall comply with all State and local visibility regulations.

2.4.2 Sound Intrusions

The CONTRACTOR shall keep construction activities under surveillance and control to minimize environment damage by noise.

2.4.3 Burning

Burning shall be prohibited on the premises.

2.5 CHEMICAL MATERIALS MANAGEMENT AND WASTE DISPOSAL

Disposal of wastes shall be as directed below, unless otherwise specified in other sections and/or shown on the drawings.

2.5.1 Solid Wastes

Solid wastes (excluding clearing debris) shall be placed in containers which are emptied on a regular schedule. Handling, storage, and disposal shall be conducted to prevent contamination. Segregation measures shall be employed so that no hazardous or toxic waste will become co-mingled with solid waste.

2.5.2 CONTRACTOR Generated Hazardous Wastes/Excess Hazardous Materials

Hazardous wastes are defined in 40 CFR 261, or are as defined by applicable State and local regulations. Hazardous materials are defined in 49 CFR 171 - 178. The CONTRACTOR shall, at a minimum, manage and store hazardous waste in compliance with 40 CFR 262.

2.5.3 Fuel and Lubricants

Storage, fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spill and evaporation. Fuel, lubricants and oil shall be managed and stored in accordance with all Federal, State, Regional, and local laws and regulations. Used lubricants and used oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with 40 CFR 279, State, and local laws and regulations. Storage of fuel on the project site shall be accordance with all Federal, State, and local laws and regulations.

2.5.4 Waste Water

Disposal of waste water shall be as specified below:

a. Waste water from remediation activities, such as dewatering of sediment and subsequent discharge either into a stream or into a public sanitary sewer shall be managed in accordance with Federal, State, and Local regulations.
b. For discharge of ground water, the CONTRACTOR shall surface discharge in accordance with all Federal, State, and local laws and regulations.

2.6 PREVIOUSLY USED EQUIPMENT

The CONTRACTOR shall clean all previously used construction equipment prior to bringing it onto the project site. The CONTRACTOR shall ensure that the equipment is free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. The CONTRACTOR shall consult with the USDA jurisdictional office for additional cleaning requirements.

2.7 MAINTENANCE OF POLLUTION FACILITIES

The CONTRACTOR shall maintain permanent and temporary pollution control facilities and devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

2.8 POST CONSTRUCTION CLEANUP

The CONTRACTOR shall clean up all areas used for. The CONTRACTOR shall, unless otherwise instructed in writing by the PROJECT MANAGER, obliterate all signs of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. The disturbed area shall be graded, filled and the entire area seeded unless otherwise indicated.

■ END OF SECTION –
■

PHASE I
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01356
STORM WATER POLLUTION PREVENTION MEASURES

TABLE OF CONTENTS

INTRODUCTION

This guide specification was modified from the original Corps of Engineers specification entitled "Section 01356 – STORM WATER POLLUTION PREVENTION MEASURES" and shall be used in conjunction with the Project Specification Section 02270: *Erosion and Sediment Control.*

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications may be referred to in the text by basic designation only.

a. ASTM D 4439 (1997) Standard Terminology for Geosynthetics
b. ASTM D 4491 (1996) Water Permeability of Geotextiles by Permittivity
c. ASTM D 4533 (1991; R 1996) Trapezoid Tearing Strength of Geotextiles

d. ASTM D 4632 (1991; R 1996)) Grab Breaking Load and Elongation of Geotextiles
e. ASTM D 4751 (1995) Determining Apparent Opening Size of a Geotextile
f. ASTM D 4873 (1995) Identification, Storage, and Handling of Geosynthetic Rolls
g. *Wisconsin Construction Site Best Management Practice Handbook* – Prepared by the Wisconsin Department of Natural Resources, Publication #1700
h. *Erosion Control Product Acceptability Lists (PAL)*, February 2004 Edition – Prepared by the Wisconsin Department of Transportation

1.2 GENERAL

The CONTRACTOR shall implement the storm water pollution prevention measures specified in this section in a manner which will meet the requirements of Project Specification Section #01355: *Environmental Protection* and be consistent with the *Wisconsin Construction Site Best Management Practice Handbook.*

1.3 EROSION AND SEDIMENT CONTROLS

The controls and measures required by the CONTRACTOR are described below and shall be consistent with the *Erosion Control Product Acceptability Lists (PAL)*, *Wisconsin Construction Site Best Management Practice Handbook*.

1.3.1 Stabilization Practices

The stabilization practices to be implemented may include temporary seeding, mulching, geotextiles, erosion control mats, protection of trees, preservation of mature vegetation, etc. On his daily CQC Report, the CONTRACTOR shall record the dates when the major grading activities occur; when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Stabilization practices shall be initiated as soon as practicable, but no more than 14 days, in any portion of the site where construction activities have permanently ceased or temporarily ceased for more than 21 days.

1.3.1.1 Unsuitable Conditions

Where the initiation of stabilization measures by the fourteenth day after construction activity permanently ceases is precluded by unsuitable conditions caused by the weather, stabilization practices shall be initiated as soon as practicable after conditions become suitable.

1.3.1.2 No Activity for Less Than 21 Days

Where construction activity will resume on a portion of the site within 21 days from when activities ceased (e.g., the total time period that construction activity is temporarily ceased is less than 21 days), then stabilization practices do not have to be initiated on that portion of the site by the fourteenth day after construction activity temporarily ceased.

1.3.2 Structural Practices

Structural practices shall be implemented to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants

from exposed areas of the site during and post construction/remediation activities. Structural practices shall be implemented in a timely manner during the construction process to minimize erosion and sediment runoff. General location and details of these practices are shown on the project drawings (reference Drawing #8 & #9). Alternative practices may be found in the *Wisconsin Construction Site Best Management Practice Handbook,* and *Erosion Control Product Acceptability Lists (PAL)* subject to approval of the PROJECT MANAGER.

1.3.2.1 Silt Fences

The CONTRACTOR shall provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Silt fences shall be properly installed to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, excavation, embankment, and grading). Silt fences shall be installed in the locations indicated on the drawings or as required, based on field conditions. Final removal of silt fence barriers shall be upon approval by the PROJECT MANAGER.

1.3.2.2 Straw Bales

The CONTRACTOR shall provide bales of straw as a temporary structural practice to minimize erosion and sediment runoff. Bales shall be properly placed to effectively retain sediment immediately after completing each phase of work (e.g., clearing and grubbing, excavation, embankment, and grading) in each independent runoff area (e.g., after clearing and grubbing in an area between a ridge and drain, bales shall be placed as work progresses, bales shall be removed/ replaced/relocated as needed for work to progress in the drainage area). Straw bales shall be installed as shown on the drawings or as required, based on field conditions. Additional locations may be required by the PROJECT MANAGER. Final removal of straw bale barriers shall be upon approval by the PROJECT MANAGER. Rows of bales of straw shall be provided at a minimum, as follows:

a. Along the top of the slope or top bank of drainage ditches, channels, swales, etc. that traverse disturbed areas.
b. Along the toe of all cut slopes and fill slopes of the construction areas.
c. Perpendicular to the flow in the bottom of existing drainage ditches, channels, swales, etc. that traverse disturbed areas or carry runoff from disturbed areas.
d. Perpendicular to the flow in the bottom of new drainage ditches, channels, and swales. Rows shall be spaced as shown on the drawings.
e. At the entrance to culverts that receive runoff from disturbed areas.

1.3.2.3 Diversion Dikes

Diversion dikes shall have a maximum slope of 2 percent and shall be adequately compacted to prevent failure. The minimum height measured from the top of the dike to the bottom shall be 18 inches. The minimum

base width shall be 6 feet and the minimum top width shall be 2 feet. The CONTRACTOR shall ensure that the diversion dikes are not damaged by construction operations or traffic.

PART 2 PRODUCTS

2.1 COMPONENTS FOR SILT FENCES

2.1.1 Filter Fabric

The geotextile shall comply with the requirements of ASTM D 4439 or as approved by the PROJECT MANAGER, and shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of ester, propylene, or amide, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistance to deterioration due to ultraviolet and heat exposure. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0 to 120 degrees F. The filter fabric shall meet the following requirements:

FILTER FABRIC FOR SILT SCREEN FENCE

PHYSICAL PROPERTY	TEST PROCEDURE	STRENGTH REQUIREMENT
Grab Tensile	ASTM D 4632	100 lbs. min.
Elongation (%)	ASTM D 4632	30 % max.
Trapezoid Tear	ASTM D 4533	55 lbs. min.
Permittivity	ASTM D 4491	0.2 sec-1
AOS (U.S. Std Sieve)	ASTM D 4751	20-100

2.1.2 Silt Fence Stakes and Posts

The CONTRACTOR may use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction, shall have a minimum cross section of 2 inches by 2 inches when oak is used and 4 inches by 4 inches when pine is used, and shall have a minimum length of 3 feet. Steel posts (standard "U" or "T" section) utilized for silt fence construction, shall have a minimum weight of 1.33 pounds per linear foot and a minimum length of 3 feet.

2.1.3 Identification Storage and Handling

Filter fabric shall be identified, stored and handled in accordance with ASTM D 4873.

2.2 COMPONENTS FOR STRAW BALES

The straw in the bales shall be stalks from oats, wheat, rye, barley, rice, or from grasses such as Byhalia, Bermuda, etc., furnished in air dry condition. The bales shall have a standard cross section of 14 inches by 18 inches. All bales shall be either wire-bound or string-tied. The CONTRACTOR may use either wooden stakes or steel posts to secure the straw bales to the ground. Wooden stakes utilized for this purpose, shall have minimum dimensions of 2 inches x 2 inches in cross section and shall have a minimum length of 3 feet. Steel posts (standard "U" or "T" section) utilized for securing straw bales,

shall have a minimum weight of 1.33 pounds per linear foot and a minimum length of 3 feet.

PART 3 EXECUTION

3.1 INSTALLATION OF SILT FENCES

Silt fences shall extend a minimum of 24 inches above the ground surface and shall not exceed 34 inches above the ground surface. Filter fabric shall be from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter fabric shall be spliced together at a support post, with a minimum 6 inch overlap, and securely sealed. A trench shall be excavated approximately 4 inches wide and 4 inches deep on the up slope side of the location of the silt fence. The 6-inch by 6-inch trench shall be backfilled and the soil compacted over the filter fabric. Silt fences shall be removed upon approval by the Contracting Officer.

3.2 INSTALLATION OF STRAW BALES

Straw bales shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. Straw bales shall be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales in order to prevent deterioration of the bindings. The barrier shall be entrenched and backfilled. A trench shall be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. After the bales are staked and chinked (gaps filled by wedging with straw), the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to 4 inches against the uphill side of the barrier. Loose straw shall be scattered over the area immediately uphill from a straw bale barrier to increase barrier efficiency. Each bale shall be securely anchored by at least two stakes driven through the bale. The first stake or steel post in each bale shall be driven toward the previously laid bale to force the bales together. Stakes or steel pickets shall be driven a minimum 12 inches deep into the ground to securely anchor the bales.

3.3 MAINTENANCE

The CONTRACTOR shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. The following procedures shall be followed to maintain the protective measures.

3.3.1 Silt Fence Maintenance

Silt fences shall be inspected and any required repairs shall be made promptly. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits shall be removed when deposits reach one-half of the height of the barrier. When a silt fence is no longer required, it shall be removed. The immediate area occupied by the fence and any sediment deposits

shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be seeded.

3.3.2 Straw Bale Maintenance

Straw bale barriers shall be inspected and necessary repairs to barriers or replacement of bales shall be accomplished promptly. Sediment deposits shall be removed when deposits reach one-half of the height of the barrier. Bale rows used to retain sediment shall be turned uphill at each end of each row. When a straw bale barrier is no longer required, it shall be removed. The immediate area occupied by the bales and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be seeded.

3.3.3 Diversion Dike Maintenance

Diversion dikes shall be inspected and necessary repairs shall be accomplished promptly. When diversion dikes are no longer required, they shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be seeded.

3.4 INSPECTIONS

3.4.1 General

The CONTRACTOR shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every seven (7) calendar days and within 24 hours of the end of any storm that produces 0.5 inches or more rainfall at the site.

3.4.2 Inspections Details

Disturbed areas and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the Storm Water Pollution Prevention Plan shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles exit the site shall be inspected for evidence of offsite sediment tracking.

3.4.3 Inspection Reports

For each inspection conducted, the CONTRACTOR shall prepare a report summarizing the scope of the inspection, name(s) of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Storm Water Pollution Prevention Plan, maintenance performed, and actions taken. The inspection may be recorded on the daily CQC report in lieu of preparing a stand-alone record. A copy of the inspection report shall be maintained on the job site.

-- END OF SECTION --

SUBDIVISION 01.4

01451 CONTRACTOR QUALITY CONTROL

PHASE I
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01451
CONTRACTOR QUALITY CONTROL

TABLE OF CONTENTS

INTRODUCTION

This guide specification was modified from original Corps of Engineers specification entitled "Section 01451 – CONTRACTOR QUALITY CONTROL".

PART 1 GENERAL

(None)

PART 2 EXECUTION

2.1 GENERAL REQUIREMENTS

The CONTRACTOR is responsible for quality control and shall establish and maintain an effective quality control. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and off site, and shall be keyed to the proposed construction sequence. The site project

superintendent will be held responsible for the quality of work on the job and is subject to removal by the PROJECT MANAGER for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the PROJECT MANAGER, and shall be responsible for all construction and construction related activities at the site.

2.2 QUALITY CONTROL PLAN

The CONTRACTOR shall furnish for review by the PROJECT MANAGER, not later than 30 days after receipt of notice to proceed, the CONTRACTOR Quality Control (CQC) Plan proposed to implement the requirements of the contract. The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The PROJECT MANAGER will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

2.2.1 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by SUBCONTRACTORS, fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The CONTRACTOR's staff shall include a QC Manager who shall report to the PROJECT MANAGER.
b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
c. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of SUBCONTRACTORS, offsite fabricators, suppliers, and purchasing agents.
d. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the PROJECT MANAGER.)
e. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
f. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
g. Reporting procedures, including proposed reporting formats.
h. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may

generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

2.2.2 Acceptance of Plan

Acceptance of the CONTRACTOR's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The PROJECT MANAGER reserves the right to require the CONTRACTOR to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

2.2.3 Notification of Changes

After acceptance of the CQC Plan, the CONTRACTOR shall notify the PROJECT MANAGER in writing of any proposed change. Proposed changes are subject to acceptance by the PROJECT MANAGER.

2.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the PROJECT MANAGER of the CQC Plan, the CONTRACTOR shall meet with the PROJECT MANAGER or Authorized Representative and discuss the CONTRACTOR's quality control system. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of CONTRACTOR's Management and control with the PROJECT MANAGER's Quality Assurance. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the CONTRACTOR.

2.4 QUALITY CONTROL ORGANIZATION

2.4.1 Personnel Requirements

The CONTRACTOR's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the PROJECT MANAGER. The CONTRACTOR shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, show drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the CONTRACTOR. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the PROJECT MANAGER.

2.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, shall be made as specified in Section 01300 SUBMITTALS. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

2.6 CONTROL

CONTRACTOR Quality Control is the means by which the CONTRACTOR ensures that the construction, to include that of SUBCONTRACTORS and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the QC Manager for each definable feature of work as follows:

2.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work; after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the CONTRACTOR at the preparatory inspection. These copies shall be maintained in the field and available for use by PROJECT MANAGER personnel until final acceptance of the work.
b. A review of the contract drawings.
c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
d. Review of provisions that have been made to provide required control inspection and testing.
e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work. A check to ensure that the portion of the plan for the work to be performed has been accepted by the PROJECT MANAGER.
i. Discussion of the initial control phase.
j. The PROJECT MANAGER shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the QC Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the QC Manager and attached to the daily CQC report. The CONTRACTOR shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

2.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
d. Resolve all differences.
e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
f. The PROJECT MANAGER shall be notified at least 48 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the QC Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

2.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The CONTRACTOR shall not build upon nor conceal non-conforming work.

2.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

2.7 TESTS

2.7.1 Testing Procedure

The CONTRACTOR shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the CONTRACTOR shall furnish to the PROJECT MANAGER duplicate samples of test specimens for possible testing by the PROJECT MANAGER. Testing includes operation and/or acceptance tests when specified. The CONTRACTOR shall perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.
c. Check test instrument calibration data against certified standards.
d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the PROJECT MANAGER, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the PROJECT MANAGER. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

2.7.2 Testing Laboratories

2.7.2.1 Capability Check

The PROJECT MANAGER reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

2.7.3 Onsite Laboratory

The PROJECT MANAGER reserves the right to utilize the CONTRACTOR's control testing laboratory and equipment to make assurance tests, and to check the CONTRACTOR's testing procedures, techniques, and test results at no additional cost to the PROJECT MANAGER.

2.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the CONTRACTOR. Samples of materials for test verification and acceptance testing by the PROJECT MANAGER shall be delivered to the PROJECT MANAGER. Coordination for each specific test, exact delivery location, and dates will be made through the PROJECT MANAGER.

2.8 DOCUMENTATION

The CONTRACTOR shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of SUBCONTRACTORS and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

a. CONTRACTOR/SUBCONTRACTOR and their area of responsibility.
b. Operating plant/equipment with hours worked, idle, or down for repair.
c. Work performed each day, giving location, description, and by whom.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.
e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.
g. Offsite surveillance activities, including actions taken.
h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
i. Instructions given/received and conflicts in plans and/or specifications.
j. CONTRACTOR's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The report from the QC Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

2.9 SAMPLE FORMS

Sample forms will be provided by the CONTRACTOR a minimum of 10 days prior to the start of work and approved by the PROJECT MANAGER.

2.10 NOTIFICATION OF NONCOMPLIANCE

The PROJECT MANAGER will notify the CONTRACTOR of any detected noncompliance with the foregoing requirements. The CONTRACTOR shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the CONTRACTOR at the work site, shall be deemed sufficient for the purpose of notification. If the CONTRACTOR fails or refuses to comply promptly, the PROJECT MANAGER may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the CONTRACTOR.

– END OF SECTION –

SUBDIVISION 01.5

01500 TEMPORARY CONSTRUCTION FACILITIES & UTILITIES

PHASE I
DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01500
TEMPORARY CONSTRUCTION FACILITIES AND UTILITIES

TABLE OF CONTENTS

INTRODUCTION

This guide specification has been modified from the original Corps of Engineers specification entitled "Section 01500 – TEMPORARY CONSTRUCTION FACILITIES". Unless noted otherwise, the following products and execution will be the responsibility of the CONTRACTOR.

PART 1 GENERAL

1.1 QUALITY ASSURANCE

Items provided under this section shall be listed and labeled by UL or other Nationally Recognized Testing Laboratory (NRTL). The term "NRTL" shall be as defined in OSHA Regulation 1910.7. The terms "listed" and "labeled" shall be as defined in National Electrical Code, Article 100.

1.1.1 Regulatory Requirements:

National Electrical Code: Components and installation shall comply with NFPA 70. Comply with federal, state, and local codes and regulations, and with utility company requirements.

PART 2 PRODUCTS

2.1 WATER FOR CONSTRUCTION

CONTRACTOR is responsible for making arrangements and pay costs to obtain suitable drinking water.

2.2 SANITARY FACILITIES

Provide temporary sanitary toilet facilities conforming to state and local health and sanitation regulations, in sufficient number for use of CONTRACTOR'S and Subcontractor's employees. Maintain in sanitary condition and properly supply with toilet paper.

2.3 TEMPORARY FIRE PROTECTION

Provide and maintain fire extinguishers in accordance with OSHA regulations.

2.4 TEMPORARY SITE AND OTHER ROADS

Construct and maintain temporary site roadways in snow free, ice free, drivable condition necessary to carry out remediation operations.

2.5 SECURITY

Site Security will be provided by OTHERS. CONTRACTOR shall, however, be responsible for loss or injury to CONTRACTOR'S persons or property where Work is involved, and shall provide the necessary security and/or take precautionary measures to protect CONTRACTOR'S interests.

2.6 TEMPORARY PARKING

Designated areas of existing parking facilities may be used for parking of construction personnel's private vehicles and of CONTRACTOR'S light-weight vehicle. Do not allow heavy vehicles or construction equipment in parking areas.

2.7 TEMPORARY FENCING

Provide temporary fencing sufficient to prevent trespass by CONTRACTOR'S employees and suppliers onto private property and by public onto construction site. Materials shall be sufficiently durable to be effective for duration of construction period.

2.8 PROJECT IDENTIFICATION

Provide signs suitably supported and erected on Project site. Locate signs where designated by PROJECT MANAGER. Do not place other signs on-site except name of respective Subcontractors on their field offices.

2.9 FIELD OFFICES AND BUILDINGS

If required by CONTRACTOR, erect where designated by PROJECT MANAGER, and maintain in good condition, temporary field office, tool, and storage building(s) for CONTRACTOR'S use. Tool storage building(s) shall be of ample size to provide space for tools and equipment. Building(s) shall be neat and well constructed, surfaced with plywood, drop siding, masonite, or other similar material, well painted and void of advertisements.

PART 3 EXECUTION

3.1 GENERAL

Maintain and operate systems to ensure continuous service. Modify and extend systems as Work progress requires.

3.2 REMOVAL

Completely remove temporary materials, equipment, signs, and structures when no longer required. In unfinished areas, clean and repair damage caused by temporary installations or use of temporary facilities, restore drainage, and evenly grade, seed or plant as necessary to provide appearance equal to or better than original. In finished areas, restore existing or permanent facilities used for temporary services to specified or original condition.

3.3 DAMAGE TO EXISTING PROPERTY

CONTRACTOR is responsible for replacing or repairing damage to existing buildings, structures, sidewalks, roads, parking lot surfacing, and other existing assets.

--- END OF SECTION ---

SUBDIVISION 01.6

01600 MATERIAL AND EQUIPMENT

PHASE I
DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01600
MATERIAL AND EQUIPMENT

TABLE OF CONTENTS

INTRODUCTION

This guidance specification was created specifically for the set of specifications.

PART 1 GENERAL

1.1 SUBMITTALS

The following will be submitted by the CONTRACTOR to the PROJECT MANAGER in accordance with Section 01300:

a. Manufacturer's installation instructions.

1.2 SUBSTITUTIONS

1.2.1 Request for Change

CONTRACTOR'S requests for changes in equipment and materials from those required by Contract Documents are considered "requests for substitutions" and subject to CONTRACTOR'S representations and review provisions of Contract Documents when one of following conditions are satisfied.

a. Where request directly related to "or equal" clause or other language of same effect in Specifications.
b. Where required equipment or material cannot be provided within Contract Time, but not as result of CONTRACTOR'S failure to pursue Work promptly or coordinate various activities properly.

c. Where required equipment or material cannot be provided in manner compatible with other materials of Work, or cannot be properly coordinated therewith.

1.2.2 Contractor's Options

a. Compatibility of Options: Where more than one choice available as options for CONTRACTOR'S selection of equipment or material, select option compatible with other equipment and materials already selected.
b. Standards, Codes, and Regulations: Where compliance with imposed standard, code or regulation required, select from among products which comply with requirements of those standards, codes, and regulations.
c. "Or Equal": For material or equipment specified by naming one or more equipment manufacturer and "or equal", CONTRACTOR shall submit request for substitution for equipment or manufacturer not specifically named.
d. No Substitute Permitted: For equipment or material specified by naming only one or two manufacturers or material and followed by words "no substitution permitted" or similar wording, there is no option.

1.2.3 Conditions Which are not Substitutions

a. Specified options of materials and equipment included in Contract Documents.
b. Revisions to Contract Documents requested by PROJECT MANAGER are "changes" not "substitutions."
c. CONTRACTOR'S determination of and compliance with governing regulations and orders issued by governing authorities do not constitute substitutions, except as provided for in Contract Documents.

1.3 MANUFACTURER'S INSTRUCTIONS

Installation of equipment and materials shall comply with manufacturer's instructions. Obtain and distribute printed copies of such instructions to parties involved in installation, including 2 copies to PROJECT MANAGER. Maintain one set of complete instructions at job site during installation and until completion of Work. Handle, store, install, connect, clean, condition, and adjust materials and equipment in accordance with manufacturer's written instructions and in conformance with Specifications. If job conditions or specified requirements conflict with manufacturer's instructions, consult PROJECT MANAGER for further instructions. Do not proceed with Work without written instructions.

1.4 TRANSPORTATION AND HANDLING

CONTRACTOR shall arrange deliveries of materials and equipment in accordance with Construction Progress Schedule. Coordinate to avoid conflict with Work and conditions at site. Deliver materials and equipment in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible. Immediately upon delivery, inspect shipments to ensure compliance with Contract Documents and approved submittals and products have been protected and are undamaged. Provide equipment and personnel to handle materials and equipment by methods recommended by manufacturer to prevent soiling or damage to materials or equipment, or packaging.

1.5 STORAGE, PROTECTION, AND MAINTENANCE

On-site temporary storage areas and buildings shall be provided by CONTRACTOR as required.

1.5.1 Interior Storage

Store materials and equipment with seals and labels intact and legible. Store materials and equipment subject to damage by elements in weather-tight enclosures

1.5.2 Exterior Storage

Store fabricated materials and equipment above ground, on blocking or skids, to prevent soiling or staining. Cover materials and equipment subject to deterioration with impervious sheet coverings. Provide ventilation to avoid condensation. Store materials on pallets or racks, off ground.

1.5.3 Inspection and Maintenance

Arrange storage to provide easy access for inspection, maintenance, and inventory. Make periodic inspections of stored materials and equipment.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Material and Equipment Incorporated into Work

Conform to applicable specifications and standards. Comply with size, make, type, and quality specified or as specifically approved by submittal.

— END OF SECTION —

SUBDIVISION 01.7

01720 PROJECT RECORD DOCUMENTS
01770 CLOSEOUT AND CLEANUP PROCEDURES

PHASE I
DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01720
PROJECT RECORD DOCUMENTS

TABLE OF CONTENTS

INTRODUCTION

This guide specification was created specifically for the set of specifications.

PART 1 GENERAL

1.1 SUMMARY

The CONTRACTOR will maintain at site one record copy of:

a. Drawings.
b. Project Manual.
c. Addenda.
d. Change orders and other modifications to Contract.
e. PROJECT MANAGER field orders, written instructions, or clarifications.
f. Approved submittals.
g. Field test records.
h. Construction photographs.
i. Associated permits.
j. Approved set of drawings.
k. Certificates of inspection and approvals.
l. Samples

1.2 SUBMITTALS

The CONTRACTOR will submit to the PROJECT MANAGER the following items in accordance with Section 01300 – SUBMITTALS:

a. Deliver one marked up set of Drawings to PROJECT MANAGER for use in preparation of record drawings. The drawings will be accompanied by a transmittal

letter containing following.

1. Date.
2. Project title and number.
3. CONTRACTOR'S name and address.
4. Title of record document.
5. Signature of CONTRACTOR or authorized representative.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 MAINTENANCE OF DOCUMENTS AND SAMPLES

Store documents and samples in CONTRACTOR'S field office apart from documents used for construction. Provide files and racks for storage of documents. Provide secure storage space for storage of samples. Maintain documents in clean, dry, legible condition and in good order. Do not use record documents for construction purposes. Make documents and samples available for inspection by PROJECT MANAGER. Failure to properly maintain record documents may be reason to delay a portion of progress payments until records comply with Contract Documents.

3.2 RECORD DOCUMENTS

Label each document "PROJECT RECORD" in neat, large printed letters. Maintain record set of Drawings and Specifications legibly annotated to show all changes are made during construction. Graphically depict changes by modifying or adding to plans, details, sections, elevations, or schedules. Make changes on each sheet affected by changes. Record applicable information concurrently with construction progress. Do not conceal Work until required information is recorded. Record changes made by Change Order, Construction Change Directive or order for minor change in Work.

3.2.1 Drawings:

3.2.1.1 General:

In general, drawings will contain the following information: Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements; Field changes; Details not on original Drawings.

3.2.1.2 Specifications:

Mark Specification sections to show substantial variations in actual Work performed in comparison with test of Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.

— END OF SECTION —

PHASE I
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01770
CLOSEOUT AND CLEANUP PROCEDURES

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INTRODUCTION

This guide specification has been modified from the original Corps of Engineers specification entitled "Section 01770 – CLOSEOUT PROCEDURES".

PART 1 GENERAL

1.1 SUBMITTALS

The CONTRACTOR shall submit the following to the PROJECT MANAGER in accordance with Section 01330, "SUBMITTAL PROCEDURES":

a. As-built drawings

1.2 PROJECT RECORD DOCUMENTS

1.2.1 As-Built Drawings

The CONTRACTOR shall provide as-built drawings of the interceptor trench, monitoring wells, and other features as directed by the PROJECT MANAGER.

– END OF SECTION –

DIVISION 02 – SITE WORK

SUBDIVISION 02.0

(NONE)

SUBDIVISION 02.1

02100 SITE PREPARATION

PHASE I
DIVISION 02 – SITE WORK

SECTION 02100
SITE PREPARATION

TABLE OF CONTENTS

INTRODUCTION

This guide specification was created specifically for the set of specifications.

PART 1 GENERAL

1.1 SUMMARY

Section Includes:

a. Clearing and grubbing.
b. Stripping topsoil.
c. Demolition and miscellaneous surface features.

1.2 DEFINITIONS

a. Structures and Surface Features: Existing structures and surface features including buildings, pavements, curb and gutter, signs, posts, fences, trees, shrubs, landscaped surface features, and other miscellaneous items.

b. Utilities: Existing gas mains, water mains, steam lines, electric lines and conduits, telephone and other communication lines and conduits, sewer pipe, cable television, other utilities, and appurtenances.

c. Clearing and Grubbing: Cutting and disposing of trees, brush, windfalls, logs, and other vegetation, and removing and disposing of roots, stumps, stubs, grubs, logs, and other timber.

d. Salvaged Topsoil: Natural loam, sandy loam, silt loam, silty clay loam, or clay loam humus-bearing soils available from overlying portions of areas to be excavated for construction.

1.3 PROJECT/SITE CONDITIONS

Do not block or obstruct roads or streets with excavated or grubbed materials.

PART 2 EXECUTION

2.1 PROTECTION

The CONTRACTOR shall perform the following tasks to ensure protection of the site and personnel working at the site:

a. Protect existing utilities against damage.
b. Contact Diggers Hotline at (800) 242-8511 before beginning excavation.
c. Locate existing underground utilities by hand excavation.
d. If uncharted utilities are encountered during excavation, stop work and notify PROJECT MANAGER.
e. Repair damaged utilities at CONTRACTOR'S expense.
f. Preserve and protect groundwater monitoring wells. Replace damaged or destroyed monitoring wells at CONTRACTOR'S expense.
g. Cap or remove and relocate services. Protect, support, and maintain conduits, wires, pipes or other utilities that are to remain in place during work.

2.2 PREPARATION

Provide 3 working days notice, prior to beginning construction, to owners of existing utilities, structures, and surface features. Remove obstructions such as mounds of dirt, stone or debris located within limits of construction. Obstructions such as culverts, end walls, and guard posts may be removed if replaced when need for removal is completed. Replace to original condition.

2.3 CLEARING AND GRUBBING

Clearing and grubbing will be done in accordance with Section 02230 – SITE CLEARING AND GRUBBING. Clear and grub to provide access to construction area, drives, and where grade is to be raised of shrubs, trees, stumps, vegetation, rubbish, and other perishable or objectionable matter.

2.4 STRIPPING TOPSOIL

Remove topsoil to entire depth in areas where construction is to be performed and where grade is to be raised. Stockpile where indicated on Drawings or designated by PROJECT MANAGER. Stockpile for proper drainage.

2.5 DEMOLITION

Demolition includes cutting and breaking out existing concrete and masonry, and removal of equipment, piping, pavement, utilities, structures, and surface features in direct conflict with Work or required to be demolished as shown on Drawings. Protect utilities, structures, surface features, and facilities which are to remain in-place.

2.6 RESTORATION

Restore existing utilities, surface features, and structures to condition or equal to condition which existed prior to construction. Replace to original condition or better, damaged landscape work within and outside of construction limits.

--- END OF SECTION ---

SUBDIVISION 02.2

02220 GENERAL EARTHWORK
02221 TRENCHING, BACKFILLING AND COMPACTING
02230 SITE CLEARING AND GRUBBING
02270 EROSION AND SEDIMENT CONTROL
02271 RIP RAP

PHASE I
DIVISION 02 – SITE WORK

SECTION 02220
GENERAL EARTHWORK

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INTRODUCTION

This guide specification was created specifically for the set of specifications.

PART 1 GENERAL

1.1 SUMMARY

Excavation and Grading from Trench Construction, Source Soils Remediation, Riverbank Soils Remediation, and Preferential Pathway Soils Remediation.

1.2 QUALITY ASSURANCE

The PROJECT MANAGER or designee will perform construction quality assurance (CQA) on various aspects of the construction to confirm compliance with the project specifications and to assemble a record of the construction quality.

1.3 RELATED SECTIONS

a. Section 02221 Trenching, Backfilling, and Compacting

PART 2 PRODUCTS

2.1 GENERAL EARTH FILL

The general earth fill will be free of organic material. The general earth fill can consist of soil fill or rock fill.

2.2 COARSE AGGREGATE

Clean sands or gravels or other permeable material generally classified according to Unified Soil Classification System as SW, SP, GW or GP. The selected material should have rounded to sub-rounded grains. The gradation of the coarse aggregate shall be similar to AASHTO No: 5 having the following distribution:

Sieve Size (inches)	Percent Passing (by weight)
1- 1/2	100
1	90 to 100
3/4	20 to 55
1/2	0 to 10
3/8	0 to 5

2.3 GRANULAR MATERIAL

Clean sands or gravels or other permeable material generally classified according to Unified Soil Classification System as SW, SP, GW or GP. The selected material should have rounded to sub-rounded grains. The maximum particle size of the selected material is 3/4-inches. Permeability: 1 x 10^{-2} cm/sec or greater.

2.4 TRENCH BACKFILL AND PIPE BEDDING

Furnish crushed stone, crushed gravel, or crushed concrete conforming to the following (WDOT Section 310, Open Graded Base):

SIEVE SIZE	PERCENT PASSING (by weight)
1 inch (25.0 mm)	90 - 100
3/8 inch (9.5 mm)	45 - 65
No. 4 (4.75 mm)	15 - 45
No. 10 (2.00 mm)	0 - 20
No. 40 (425 µm)	0 - 10
No. 200 (75 µm)	0 - 5.0

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Survey Markers

Identify required lines, levels, contours, and datum. Protect bench marks and survey layout stakes from excavation equipment and vehicular traffic.

3.2 EXCAVATION

Excavating shall be performed within the limits of Project to lines, grades and elevations shown in the Construction Drawing(s). Excavated materials shall be segregated into soil fill, and contaminated material. Excavated materials shall be transported to fill areas, or to a designated stockpile. Contaminated material shall be taken to the appropriate off-site landfill for disposal. Over excavate to assure removal of contaminated material.

3.3 FILL PLACEMENT

3.3.1 Methods

Scarify prepared subgrade surface before placement of fill material to provide bonding between fill material and prepared placement areas.

3.3.2 Lift Placement

All fill materials shall be placed in maximum 12-inch loose lifts. However, layers less than 12 inches in loose thickness will be required, when necessary, to obtain the specified density. The maximum size of the particle in fill should not exceed 12 inches.

3.3.3 Compaction

The fill material which are not having 5% by weight greater than 1-inch sieve OR not having 60% by weight greater than No: 4 sieve should be compacted to at least 85% of Modified Proctor density at -4% to +2% of optimum moisture content.

At the end of each day, the exposed surface of the subgrade shall be protected from adverse weather conditions.

Any surface which is smooth shall be scarified prior to placement of a subsequent lift.

Equipment used for the compaction of the subgrade shall be approved by the PROJECT MANAGER.

The CONTRACTOR shall be responsible for preparing the materials for fill placement, including but not limited to, soil amendment and in-place drying or wetting of the soil necessary to achieve the density and moisture content requirements during placement of the fill.

Fill materials placed along slopes should be benched into the existing slopes as shown on the Construction Drawings.

3.4 FIELD QUALITY CONTROL

3.4.1 Survey

After completion of construction of general earthwork, the CONTRACTOR will verify all lines and grades.

3.4.2 Pre-Construction Testing

Previous testing and evaluations of the proposed fill materials may be used to evaluate borrow areas. The minimum frequency of test required for general earth fill materials are shown on Table 1.

TABLE 1
TESTING FREQUENCY FOR PRE-CONSTRUCTION TESTING

TEST	FILL TYPE	FREQUENCY
Modified Proctor (ASTM D1557)	Soil Fill	1 per material type
Grain-size distribution (ASTM D4222)	Soil Fill	1 per material type

--- END OF SECTION ---

PHASE I
DIVISION 02 – SITE WORK

SECTION 02221
TRENCHING, BACKFILLING, AND COMPACTING
TABLE OF CONTENTS

INTRODUCTION

This guide specification was created specifically for the set of specifications.

PART 1 GENERAL

1.1 SUMMARY

Section Includes:

a. Trenching for installation of groundwater interceptor.
b. Backfilling and compacting after installation of groundwater interceptor trench.

1.2 REFERENCES

a. ASTM D 422 - Standard Method for Particle-Size Analysis of Soils.
b. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate In-place by Nuclear Methods (Shallow Depth).

1.3 DEFINITIONS

Unsuitable Material: Topsoil, peat, organic soils, and materials containing slag, cinders, foundry sand, debris, and rubble.

1.4 QUALITY ASSURANCE

PROJECT MANAGER or designee will perform construction quality assurance (CQA) as defined in Quality Assurance / Quality Control (QA/QC) Plan.

1.5 PROJECT/SITE CONDITIONS

Do not block or obstruct access roads with excavated materials.

PART 2 PRODUCTS

2.1 GRANULAR MATERIAL

Granular material, consisting of durable particles ranging in size from fine to coarse in substantially uniform combination. Unwashed bank-run and crushed rock will be considered. Maximum particle size of the granular material (d50 of 3/8") shall not exceed 3/4-inch. Percent passing No: 200 sieve shall not exceed 15 %.

2.2 GENERAL EARTH FILL

Native material must be relatively free of mud, peat, or unsuitable material.

2.3 BEDDING MATERIAL

Refer to Specification 02220 General Earthworks, paragraph 2.4.

PART 3 EXECUTION

3.1 EXAMINATION

Examine surfaces to receive fill to determine existence of areas loosened by frost action, softened by flooding or weather, of unsuitable materials, or of unsuitable bearing capacity.

3.2 DEWATERING

Keep construction site free-draining. Keep excavations dewatered to allow for the installation pipe and backfill. Protect adjacent properties from damage resulting from dewatering operations. All

water collected during dewatering activities associated with the installation of the GMIT shall be treated using the existing Contingency Water Treatment Facility located at the Site. CONTRACTOR is responsible for providing all pumps, tanks and conveyance system components to manage the water. CONTRACTOR to include dewatering methods and procedures in work plan as required in specification 13285 "Removal and Disposal of PCB Contaminated Soils." Additional requirements and details regarding dewatering are provided in "Water Management Plan" prepared by PROJECT MANAGER.

3.3 TRENCH EXCAVATION

Excavate to elevations and dimensions necessary to complete construction. Remove and replace or compact natural soils or compacted fills softened by frost, flooding or weather prior to backfilling. Remove soil from within trench and stockpile in designated staging area. CONTRACTOR to segregate soil with PCB concentrations > 50 mg/kg as directed by the PROJECT MANAGER. . CONTRACTOR to remove additional PCB impacted soil from the excavation as directed by the PROJECT MANAGER. CONTRACTOR to describe methods and procedures for managing and disposing of trench materials in work plan in accordance with specification 13285 "Removal and Disposal of PCB Contaminated Soils."

3.3.1 Trenching Tolerances

Excavate so pipes, conduits, and appurtenances can be laid straight at uniform grade, without sags or humps, between elevations shown on Drawings. Grade tolerance shall be held to ±0.4 feet unless noted otherwise on Drawings. Minimum trench width shall be outside pipe diameter plus 12 inches.

3.3.2 Pipe Installation

Place pipe to grade and depth shown on the Phase I Drawings.

3.3.3 Responsibility and Liability

Ultimate responsibility and liability of trench excavation and backfill shall be CONTRACTOR'S. Under no circumstances shall slopes of embankments be steeper than those approved by OSHA. Obtain, and keep active, necessary permits required by OSHA and local authorities to perform excavation and backfill.

3.3.4 Chemical Testing

Soil shall be characterized for disposal every 250 cubic yards for PCBs and other chemicals as required by the disposal facility.

3.4 MATERIAL SELECTION

3.4.1 Granular Material

Granular backfill material will be used in the GMIT trench.

3.4.2 Bedding Material

Bedding material will be used as pipe bedding for all forcemains, underground conduits, culverts and drainage pipes.

3.4.3 General Earth Fill

General Earth Fill will be used in other areas not previously specified.

3.5 PLACING TRENCH MATERIALS

Place trench materials as described below.

3.5.1 Granular Material Limits

Collection pipes: minimum 6 inches below pipe and as shown on the Construction Drawings.

3.5.2 Bedding Material Limits

Forcemains and other utilities: minimum of 6 inches below to 12 inches above pipe and minimum of 6 inches each side.

3.5.3 General Earth Fill Material Limits:

General earth fill should be placed outside the limits of the granular backfill up to the top of the trench and within the entire trench width.

3.5.4 Backfill Placement:

Avoid damage or displacement of pipe systems during backfilling. Area shall be finished off to uniform contour to properly drain, and the entire surface should be graded to result in neat-appearing surface.

3.5.5 Pipes and Conduits

Where pipes or electrical ducts cross, protect piping or ducts at higher elevation by backfilling trench within higher pipe or duct influence zone down to bedding of lower pipe or duct with bedding material.

3.6 COMPACTION (Structural Fill ONLY – NOT applicable to GMIT installation)

Provide mechanical compaction for general fill material and vibratory compaction for bedding materials.

3.6.1 Lift Thickness and Compaction:

Place and compact fill materials in maximum lift thickness and to minimum densities listed below as determined by ASTM D 2922.

TABLE 1
MAXIMUM LIFT THICKNES FOR BACKFILL TYPES

BACKFILL MATERIAL DESCRIPTION	MAX. LIFT THICKNESS (in.)	STANDARD PROCTOR (%)
Bedding Backfill	6	95
General Earth Fill	8	95

3.7 FIELD QUALITY CONTROL

3.7.1 Bedding, Granular Material and General Earth Fill Documentation

One sieve analysis for each source of bedding, granular and general earth fill material. (ASTM D 422) Additional analysis as required by PROJECT MANAGER verifying gradation for free draining fill. One density test at 200-foot intervals for every 1 foot depth of compacted earth fill and bedding material. Degree of Compaction: ASTM D 2922.

3.7.2 Laboratory Tests

PROJECT MANAGER reserves the right to have CONTRACTOR perform EPA TCLP tests for organics and metals on off-site material source at CONTRACTOR'S expense.

— END OF SECTION —

PHASE I
DIVISION 02 – SITE WORK

SECTION 02230
SITE CLEARING AND GRUBBING

TABLE OF CONTENTS

INTRODUCTION

This guide specification has been modified from the original Corps of Engineers specification entitled "Section 02230 – SITE CLEARING".

PART 1 GENERAL

1.1 DESCRIPTION

Work items included for this specification section are to clear, grub and strip work and borrow areas.

PART 2 - EXECUTION

2.1 CLEARING AND GRUBBING

2.1.1 General

This section covers clearing, grubbing, chipping and the disposal of trees, shrubs, logs, stumps, brush, roots, vegetation, debris and other obstructions and objectionable materials within the clearing limits unless designated for preservation by the PROJECT MANAGER. The work also includes the removal and disposal of fences, utilities, equipment, etc. that are not to be retained for use by the PROJECT MANAGER.

Monuments, landmarks and other facilities and structures within the work area designated for preservation by the PROJECT MANAGER shall be clearly flagged or marked by the CONTRACTOR in the field prior to commencing work. CONTRACTOR shall protect those designated items from abuse, marring, or damage during the work. Such protection shall include prohibiting parking or servicing equipment over, under, or near those items.

Limits of clearing and grubbing shall not extend beyond the limits of the right of way and shall be held to the minimum requirements for the CONTRACTOR to perform the work.

2.1.2 Clearing and Chipping

Clearing shall consist of the removal (flush with the ground surface) and disposal of all trees, brush, stumps, and other growth. Clearing shall include the removal, chipping and disposal of vegetation.

Clearing shall include the removal and disposal of slabs, concrete rubble, etc.; rubbish, fence posts, wire gates, water gaps, pull structures, road culverts, abandoned aboveground utilities, abandoned underground utilities, or parts thereof.

Chipping shall consist of the chipping of all vegetative debris that does not require disposal. Chipped material shall be stockpiled onsite in an area approved by the PROJECT MANAGER. Wood chips shall be placed at the site as directed by the PROJECT MANAGER.

2.1.3 Grubbing

Grubbing shall consist of the removal (to a maximum depth of six inches below natural ground) and disposal of all stumps, roots larger than two (2) inches in diameter, and all matted roots.

Stumps and roots within the borrow and excavation areas shall be grubbed as described above to the complete extent possible to prevent such objectionable matter from becoming mixed with the material to be used in construction.

2.1.4 Disposal of Cleared/Grubbed Material with Impacted Soil

Vegetative material that is cleared and grubbed from known PCB impacted soil areas shall be managed in the following manner:

a. Separate trunk from roots;
b. Remove soil from root system such that less than ten percent soil is attached;
c. Place soil in staging area;
d. Stockpile trunk and roots in designated staging areas; and
e. Dispose of vegetative root debris at off-site sanitary landfill.

2.2 STRIPPING

This section covers the excavation of topsoil from all work areas.

2.2.1 Methods

After the completion of clearing and grubbing work, near-surface organic soils (topsoil), including grasses and weeds growing in those soils, shall be excavated (stripped) a minimum depth of six inches from excavation and fill areas and placed in stockpiles at the designated on-site staging area for characterization and disposal (if necessary) at an off-site landfill. Topsoil with PCB concentrations < 1 ppm may be left on site as approved by the PROJECT MANAGER.

2.3 CHEMICAL TESTING

One composite sample, at a minimum, will be analyzed per 250 cubic yards of soil in each stockpile. A minimum of 8 grab samples will be collected from different areas along the surface and in the center of the stockpile. These grab samples will be combined and thoroughly mixed to develop the composite sample. Following receipt of the composite sample analytical results, topsoil with PCB concentrations < 1 ppm may be segregated for re-use. Soils with PCB concentrations > 1 ppm will be transported to the appropriate disposal facility in a manner consistent with The Soil Management Plan, Section 4.1.2.2 Handling and Transportation.

- END OF SECTION –

PHASE I
DIVISION 02 – SITE WORK

SECTION 02270
EROSION AND SEDIMENT CONTROL

TABLE OF CONTENTS

INTRODUCTION

This guide specification was created specifically for the set of specifications.

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification.

- *Wisconsin Construction Site Best Management Practice Handbook* – Prepared by the Wisconsin Department of Natural Resources, Publication #1700
- *Erosion Control Product Acceptability Lists (PAL)*, February 2004 Edition – Prepared by the Wisconsin Department of Transportation

1.2 DESCRIPTION

Work shall include providing and installing erosion control matting in completed swales and establishing vegetative cover on all areas disturbed by construction and/or as shown on the drawings. Work shall also include providing, installing and maintaining erosion and sediment control

measures for use during construction and during post construction while vegetative cover is being established.

1.2.1 Definitions

a. Erosion is the washing away of soil.
b. Sediment is soil that has already been eroded.
c. Erosion control is the prevention or minimization of erosion.
d. Sediment control is the trapping of suspended soil particles.

1.3 SUBMITTALS

a. Description of Erosion and Sediment Control methods that will be used during and post construction and remediation activities.
b. Product literature data on erosion matting.
c. Silt fencing sediment control product literature data and manufacturer's installation data on geotextile fabric.
d. Product literature data on other Contractor requested material(s) identified in their "Description of Erosion and Sediment Control." Reference PAL for acceptable alternates.

1.4 TRANSPORTATION, HANDLING, AND STORAGE

During shipment and storage, erosion control matting (excelsior mulch blanket and jute fabric) and silt fencing fabric (geotextile) shall be wrapped in relatively impermeable and opaque protective covers. Storage area shall be such that geotextile and erosion mat are protected from mud, dirt, dust, debris, moisture, and exposure to the sunlight and heat. Handling, storage, and care of geotextile, erosion control mat, and straw bales on site are the responsibility of the CONTRACTOR prior to, during, and after their installation.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Excelsior Mulch Blankets

The excelsior shall be made from fibers cut from sound, green timber. The blankets shall be made of a uniform web of interlocking fibers with a backing of net on one side only. The blanket shall be produced in the form of a tightly compressed roll not less than 35 inches wide and shall have the net on the outside of the fiber mat. Roll weight when manufactured shall average 0.09 pounds per square foot, ±10 percent. Weight of each roll shall be presented on roll wrapper or on an attached tag. The net backing shall have a mesh size not larger than 1-1/2 x 2 inches or smaller than 7/8 x 1 inch, shall be fabricated from white polypropylene plastic and fabricated or treated to promote breakdown of the net within the first growing season after replacement. Net shall be in width of not less than 35 inches. Steel wire pins or staples shall be used to anchor the blanket which shall be at least 6 inches long and made from No. 11 wire or other approved material. Manufacturer: North American Green or approved equal.

2.1.2 Jute Fabric

Jute fabric shall be a woven fabric of a uniform open weave of single jute yarn. The jute yarn shall be of twisted construction having an average twist of not less than one and one-half turns per inch. The average size of the warp and weft yarns shall be approximately the same. The woven fabric shall be furnished in rolled strips. The width of the strips shall be 48 inch, plus or minus one inch. The full width of the strip shall have 78 warp ends, plus or minus one. The fabric shall have 41 weft yarns, plus or minus two, per linear yard of length. The weight of the fabric measured under average atmospheric conditions shall be 92-pounds per 100 square yards, plus or minus ten percent. The fabric shall be non-toxic to vegetation.

2.1.3 Silt Fence

Silt fencing shall be provided in accordance with Remedial Design Specification #01356, *Storm Water Pollution Prevention Measures*.

2.1.4 Straw Bales

Straw bales shall be provided in accordance with Remedial Design Specification #01356, *Storm Water Pollution Prevention Measures*.

PART 3 EXECUTION

3.1 PERFORMANCE

3.1.1 Drainage Swale Erosion Control Lining

All drainage swales shall be lined with erosion mat as detailed on project drawings. The method of installation shall conform to the manufacturer's recommendations. The excelsior mulch blankets shall be placed with the netting on top and the straw or fibers in contact with the soil. The blankets shall be butted directly against each other and stapled at maximum intervals of 2.5 feet along joints, edges and center line of the blanket. Staples shall be driven until their tops are flush with the soil. The erosion matting strips (excelsior and Jute fabric) shall be rolled on or laid in the direction of the flow. The mat shall be spread evenly, smoothly, in a natural position without stretching and with all parts bearing on the soil. Adjacent strips shall overlap at least four inches. Strip ends shall overlap at least ten inches. All overlaps shall be made with the upgrade section on top. The upgrade end of each strip of fabric or blanket shall be buried at least six inches in a vertical slot cut in the soil and the soil pressed firmly against the embedded fabric or blanket.

3.1.2 Silt Fencing/Ditch Checks

Silt fencing shall be installed per Specification #01356 *Storm Water Pollution Prevention Measures* and as detailed on project drawings (Phase I drawings 8 and 9). Install with the posts to the downstream direction and the fabric to the upstream direction. The fabric shall be anchored below grade approximately 4 inches. Replace and compact soil in anchor trench to restore to original grade.

3.1.3 Straw Bales

Straw bales shall be installed per Specification #01356 *Storm Water Pollution Prevention Measures* and as detailed on the project drawings. Install with rebars, steel pickets, or 2-inch x 2-inch stakes embedded about 18-inches below ground. Straw bales should be placed at least 4-inches below ground.

3.2 MAINTENANCE

The CONTRACTOR shall inspect all disturbed areas and erosion and sediment control devices in accordance to Project Specification Section 02270: *Erosion and Sediment Control* immediately after each rainfall and at least daily during prolonged rainfall. Any deficiencies shall be immediately corrected by the CONTRACTOR. In addition, the CONTRACTOR shall make a daily review in areas where construction activity changes the earth contour and drainage runoff, to ensure that erosion control devices are properly located for effectiveness. Any sediment deposits remaining in place after erosion control devices are no longer required shall be dressed to conform to the existing grade and the area topsoiled, seeded, fertilized, and mulched as required. Replace damaged silt fencing as long as sediment control is required.

— END OF SECTION —

PHASE I
DIVISION 02 – SITE WORK

SECTION 02271
RIPRAP

TABLE OF CONTENTS

INTRODUCTION

This guide specification was created specifically for the set of specifications.

PART 1 GENERAL

1.1 SCOPE

Work shall include providing and installing riprap at pipe outlets. See locations in the Construction Drawings.

1.2 SUBMITTALS

Submit the following in accordance with Section 01300 - SUBMITTALS.

a. Location of source of riprap material.
b. Test results.
c. Submittals required by Section 02415 – GEOTEXTILES.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Riprap

Sound, hard, dense, field or quarry stone resistant to action of air and water, and free from seams, cracks or other structural defects. Shall be free of objectionable amounts of clay lumps, dirt coatings, and other foreign material. Weight loss shall not be more than 12% after 5 cycles when tested by sodium sulfate test methods, KM-64-610-88. Maximum shale

content as determined by visual estimation shall not exceed 2 %. Gradation and thickness of the riprap at the various locations are provided in the drawings. The gradation and thickness requirements for the riprap to be used are summarized below:

LOCATION	RIPRAP SIZE (d_{50}) inches	MINIMUM RIPRAP SIZE (inches)	MAXIMUM RIPRAP SIZE (inches)	MINIMUM THICKNESS OF RIPRAP (inches)
As shown	6	3	9	15
As shown	12	6	18	24
As shown	6	3	9	15
As shown	6	3	9	15

2.1.2 Geotextile Filter Fabric

Porous nonwoven fabric weighing >8 oz/ sq. yd. with multiple layers of randomly arranged fibers.

PART 3 EXECUTION

3.1 PREPARATION

Areas on which riprap are to be placed shall be graded and dressed to lines and grades shown on the project drawings or as required by PROJECT MANAGER. Repair eroded or washed out areas prior to placement of material.

3.2 INSTALLATION

Place riprap in areas as shown on the project drawings. Place geotextile filter fabric as shown on the project drawings in accordance with manufacturer's recommendations.

3.2.1 Riprap Placement

Place stone riprap to produce reasonably well graded mass of stone with minimum practicable percentage of voids. Place by method preventing segregation of various sizes of stone. Larger stones shall be well distributed throughout mass and finished protection shall be free from pockets of small stones and clusters of large stones. Fill holes or open spots to produce well graded protection.

— END OF SECTION —

SUBDIVISION 02.3

02373 SEPARATION/FILTRATION GEOTEXTILES

PHASE I
DIVISION 02 - SITE WORK

SECTION 02373
SEPARATION/FILTRATION GEOTEXTILE

TABLE OF CONTENTS

INTRODUCTION

This guide specification has been modified from the original Corps of Engineers specification entitled "Section 02373 - SEPARATION/FILTRATION GEOTEXTILE".

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of the specification to the extent referenced. The publications are referred to in the text by basic designation only.

a. ASTM D 3786 (1987) Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics: Diaphragm Bursting Strength Tester Method
b. ASTM D 4354 (1996) Sampling of Geosynthetics for Testing
c. ASTM D 4355 (1992) Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
d. ASTM D 4491 (1995) Water Permeability of Geotextiles by Permittivity
e. ASTM D 4533 (1991) Trapezoid Tearing Strength of Geotextiles
f. ASTM D 4632 (1991) Grab Breaking Load and Elongation of Geotextiles

g. ASTM D 4751 (1995) Determining Apparent Opening Size of a Geotextile
h. ASTM D 4759 (1988; R 1996) Determining the Specification Conformance of Geosynthetics
i. ASTM D 4833 (1988; R 1996) Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
j. ASTM D 4873 (1995) Identification, Storage, and Handling of Geosynthetic Rolls

1.2 SUBMITTALS

The following shall be submitted in accordance with Section 01300 SUBMITTALS:

a. Manufacturing Quality Control Sampling and Testing; A minimum of 14 days prior to scheduled use, manufacturer's quality control manual including instructions for geotextile storage, handling, installation, seaming, and repair.
b. Quality Assurance Samples and Tests;
c. Samples for quality assurance testing; 7 days shall be allotted in the schedule to allow for testing.
d. Seams; Seam strength test results.
e. Geotextile; A minimum of 14 days prior to scheduled use, manufacturer's certificate of compliance stating that the geotextile meets the requirements of this section. This submittal shall include copies of manufacturer's quality control test results. For needle punched geotextiles, the manufacturer shall also certify that the geotextile has been continuously inspected using permanent on-line full-width metal detectors and does not contain any needles which could damage other geosynthetic layers. The certificate of compliance shall be attested to by a person having legal authority to bind the geotextile manufacturer.

1.3 DELIVERY, STORAGE AND HANDLING

Delivery, storage, and handling of geotextile shall be in accordance with ASTM D 4873.

1.3.1 Delivery

Rolls shall be packaged in an opaque, waterproof, protective plastic wrapping. The plastic wrapping shall not be removed until deployment. If quality assurance samples are collected, rolls shall be immediately rewrapped with the plastic wrapping. Geotextile or plastic wrapping damaged during storage or handling shall be repaired or replaced, as directed. Each roll shall be labeled with the manufacturer's name, geotextile type, roll number, roll dimensions (length, width, gross weight), and date manufactured.

1.3.2 Storage

Geotextile rolls shall be protected from becoming saturated. Rolls shall either be elevated off the ground or placed on a sacrificial sheet of plastic. The geotextile rolls shall also be protected from the following: construction equipment, ultraviolet radiation, chemicals, sparks and flames, temperatures in excess of 160 degrees F, and any other environmental condition that may damage the physical properties of the geotextile.

1.3.3 Handling

Geotextile rolls shall be handled and unloaded with load carrying straps, a fork lift with a stinger bar, or an axial bar assembly. Rolls shall not be dragged along the ground, lifted by one end, or dropped to the ground.

PART 2 PRODUCTS

2.1 RAW MATERIALS

2.1.1 Geotextile

If the silt content of the native soils adjacent to the geotextile is less than 17%, (as determined by ASTM D421-58) the geotextile may be a nonwoven pervious sheet of polymeric material and shall consist of long-chain synthetic polymers composed of at least 95 percent by weight polyolefins, polyesters, or polyamides.

If the silt content of the native soils adjacent to the geotextiles is greater than 17% but less than 25%, the geotextile may be a woven monofilament and shall consist of long-chain synthetic polymers composed of at least 95 percent by weight polyolefins, polyesters, or polyamides.

If the silt content of the native soils adjacent to the geotextile is greater than 25%, the geotextile may be a woven monofilament, so long as documentation concerning its resistance to long term clogging can be provided by the manufacturer/supplier, and shall consist of long-chain synthetic polymers composed of at least 95 percent by weight polyolefins, polyesters, or polyamides.

The use of woven slit film geotextiles (i.e. geotextiles made from yarns of a flat, tape-like character) will not be allowed.

Geotextiles and factory seams shall meet the requirements specified in Table 1. Where applicable, Table 1 property values represent minimum average roll values (MARV) in the weakest principal direction. Values for AOS represent maximum average roll values.

TABLE 1. GEOTEXTILE PHYSICAL PROPERTIES

PROPERTY	TEST VALUE		TEST METHOD
Elongation at Break, percent	Less Than 50	Greater Than 20	ASTM D 4632
Apparent Opening Size (U.S. Sieve)	[TBD]	[TBD]	ASTM D 4751
Permittivity, sec-1	[TBD]	[TBD]	ASTM D 4491
Puncture, lbs.	90	55	ASTM D 4833
Grab Tensile, lbs.	250	160	ASTM D 4632
Trapezoidal	90	55	ASTM D 4533

Tear, lbs.			
Burst Strength, psi	400	190	ASTM D 3786
Ultraviolet Stability (percent strength retained at 500 hours)	50	50	ASTM D 4355
Seam Strength, lbs.	na	na	ASTM D 4632
Unit Weight	6 oz/yd^2 (min)	6 oz/yd^2 (min)	ASTM D 3776-84

2.1.2 Thread

Sewn seams shall be constructed with high-strength polyester, nylon, or other approved thread type. Thread shall have ultraviolet light stability equivalent to the geotextile and the color shall contrast with the geotextile.

2.2 MANUFACTURING QUALITY CONTROL SAMPLING AND TESTING

Manufacturing quality control sampling and testing shall be performed in accordance with the manufacturer's approved quality control manual. As a minimum, geotextiles shall be randomly sampled for testing in accordance with ASTM D 4354, Procedure A. Acceptance of geotextile shall be in accordance with ASTM D 4759. Tests not meeting the specified requirements shall result in the rejection of applicable rolls.

PART 3 EXECUTION

3.1 QUALITY ASSURANCE SAMPLES AND TESTS

3.1.1 Quality Assurance Samples

The CONTRACTOR shall provide assistance to the PROJECT MANAGER in the collection of quality assurance samples. Samples shall be collected upon delivery to the site for quality assurance testing at a frequency of one per 100,000 square feet. Samples shall be identified with a waterproof marker by manufacturer's name, product identification, lot number, roll number, and machine direction. The date and a unique sample number shall also be noted on the sample. The outer layer of the geotextile roll shall be discarded prior to sampling a roll. Samples shall then be collected by cutting the full-width of the geotextile sheet a minimum of 3 feet long in the machine direction. Rolls which are sampled shall be immediately rewrapped in their protective covering.

3.1.2 Quality Assurance Tests

The CONTRACTOR will provide quality assurance samples to an Independent Laboratory hired by the PROJECT MANAGER. Samples will be tested to verify that geotextile meets the requirements specified in Table 1. Test method ASTM D 4355 shall not be performed on the collected samples. Geotextile product acceptance shall be based on ASTM D 4759. Tests not meeting the specified requirements shall result in the rejection of applicable rolls.

3.2 INSTALLATION

3.2.1 Preparation

The surface underlying the geotextile shall be smooth and free of ruts or protrusions which could damage the geotextile.

3.2.2 Placement

Geotextile rolls which are damaged or contain imperfections shall be repaired or replaced. The geotextile shall be laid flat and smooth so that it is in direct contact with the surrounding surface. The geotextile shall also be free of tensile stresses, folds, and wrinkles. On slopes greater than 5 horizontal on 1 vertical, the geotextile shall be laid with the machine direction of the fabric parallel to the slope direction.

3.3 SEAMS

3.3.1 Overlap Seams

Geotextile panels shall be continuously overlapped a minimum of 12 inches. Where it is required that seams be oriented across the slope, the upper panel shall be lapped over the lower panel. The CONTRACTOR has the option of field sewing instead of overlapping.

3.3.2 Sewn Seams

Seams shall be continuously sewn at locations as field located by the Supervising Contractor. A flat seam with one row of a two-thread chain stitch shall be used unless otherwise recommended by the manufacturer. The minimum distance from the geotextile edge to the stitch line nearest to that edge shall be 3 inches unless otherwise recommended by the manufacturer. Seams shall be tested at a frequency of once per 750 feet. Quality assurance samples shall be taken at the request of the PROJECT MANAGER. The thread at the end of each seam run shall be tied off to prevent unraveling. Seams shall be on the top side of the geotextile to allow inspection. Skipped stitches or discontinuities shall be sewn with an extra line of stitching with a minimum of 18 inches of overlap. Final location of seams shall be documented and included on the as-built drawings.

3.4 PROTECTION

The geotextile shall be protected during installation from clogging, tears, and other damage. Damaged geotextile shall be repaired or replaced as directed. Adequate ballast (e.g. sand bags) shall be used to prevent uplift by wind. The geotextile shall not be left *uncovered for more than 14 days during installation.*

3.5 REPAIRS

Geotextile damaged during installation shall be repaired by placing a patch of the same type of geotextile which extends a minimum of 12 inches beyond the edge of the damage or defect. Patches shall be continuously fastened using a sewn seam or other approved method. The machine direction of the patch shall be aligned with the machine direction of the geotextile being repaired. Geotextile which cannot be repaired shall be replaced.

3.6 PENETRATIONS

Engineered penetrations of the geotextile shall be constructed by methods recommended by the geotextile manufacturer.

-- END OF SECTION --

SUBDIVISION 02.4

(NONE)

SUBDIVISION 02.5

02532 FORCE MAINS AND INVERTED SIPHONS; SEWER

PHASE I
DIVISION 02 - SITE WORK
SECTION 02532
FORCE MAINS AND INVERTED SIPHONS; SEWER

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INTRODUCTION

This guide specification has been modified from the original Corps of Engineers specification entitled "Section 02532 - FORCE MAINS AND INVERTED SIPHONS; SEWER".

1.1 DELIVERY AND STORAGE

Pipe, fittings and accessories, and pipe coatings shall not be damaged during delivery, handling, and storage.

PART 2 PRODUCTS

2.1 PIPE AND FITTINGS

Piping for force mains less than 4 inches in diameter shall be HDPE.

2.1.1 Plastic Pipe

2.1.2.1 HDPE Pipe

ASTM D 3350 and ASTM D 3035, minimum pressure rating of 100 psi at 73.4 degrees F.

2.2 JOINTS

2.2.1 HDPE Piping

a. Heat Fusion Joints: ASTM D 2657.
b. Flanged Joints: ASME B16.1 or AWWA C207.
c. Mechanical Joints: ASME B16.1.

2.3 VALVES

2.3.1 Ball Valves

a. Type V330 PVC Ball Valve 2 inches and smaller: Rated 150 psi at 73 degrees F, with ASTM D1784, Type 1, Grade 1 polyvinyl chloride body, ball, and stem, end entry, double union design, solvent-weld socket ends, elastoomer seat, Viton or Teflon O-ring stem seals, to block flow in both directions.
b. Type V331 PVC Ball Valve 3 and 4 inches: Rated 150 psi at 73 degrees F, with ASTM D1784, Type 1, Grade 1 polyvinyl chloride full port body, Teflon seat, Viton O-ring stem, face and carrier seals, end entry design with dual union, solvent-weld socket ends, or single union ball valve with flanged ends drilled to ANSI B16.1.

2.3.2 Butterfly Valves

a. Type V520 Solid Polyvinyl Chloride Butterfly Valve, 2-Inch to 6-Inch: Wafer body type, pressure rated 150 psi at 70 degrees F CWP, solid ASTM D1784, Type I, Grade 1, PVC body and contoured valve disc, stainless steel valve shaft, Viton seat, lever operator.

2.3.3 Check Valves

a. Type V609 PVC Swing Check Valve 4 inches and smaller: ASTM D1784, Type I, Grade 1, PVC body, rate at 150 psi, Viton seats and seals, flanged ends.
b. Type V632 Ball Check Valve 3 inches and larger: Flanged end, iron body valve with cleanout and floating type hollow steel ball, vulcanized nitrile rubber exterior, flanges ANSI B16.1, Class 125, rated 150-pound WOG, suitable for vertical up or horizontal flow.
c. Type V694 Check Valve: Elastomer type flanged or slip-on, round entry area to match pipe, contoured duckbilled shaped exit, valve open with approximately 2 inches of line pressure and return to CLOSED position under zero flow condition, flanged, rated for 50 psi minimum operating pressure; flanges steel backing flange type, drilled to ANSI B16.1, Class 125, plain-end valve attached with two Type 316 stainless steel adjustable bands, elastomer nylon-reinforced neoprene.

PART 3 EXECUTION

3.1 INSTALLATION

Pipe, pipe fittings, and appurtenances shall be installed at the locations indicated.

3.1.1 Cutting

Pipe shall be cut in a neat manner with mechanical cutters. Wheel cutters shall be used where practicable. Sharp and rough edges shall be ground smooth and loose material removed from the pipe before laying.

3.1.2 Laying

Except where otherwise authorized, pipe shall be laid with bells facing the direction of laying. Before lowering and while suspended, the pipe shall be inspected for defects. Defective material shall be rejected. Pipe shall be laid in compliance with the following:

a. Polyethylene: ASTM D 2774.

3.1.3 Jointing

3.1.3.1 Joints for HDPE Pipe

Heat fusion joints shall comply with the manufacturer's instructions concerning equipment, temperature, melt time, heat coat, and joining time. Flanged and mechanical joints shall be made in compliance with the manufacturer's instructions.

3.1.4.3 Joints for Polypropylene Pipe

Heat fusion joints shall comply with the manufacturer's instructions concerning equipment, temperature, melt time, heat coat, and joining time.

3.2 HYDROSTATIC TESTS

The pipeline shall be subjected to a pressure test. Testing shall be performed by the CONTRACTOR subject to approval. The PROJECT MANAGER shall be notified at least 7 days in advance of equipment tests. The final test report shall be delivered to the PROJECT MANAGER within 30 days of the test.

3.2.1 Pressure Test

After the pipe has been installed, joints completed, and the trench has been partially backfilled, leaving the joints exposed for examination, the pipe shall be filled with water to expel all air. The pipeline shall be subjected to a test pressure of 100 psi or 150 percent of the working pressure, whichever is greater, for a period of at least one hour. The exposed pipe, joints, and fittings shall be examined for leaks. Visible leaks shall be stopped or the defective pipe, fitting, joints, or valve shall be replaced.

3.2.2 Retesting

If any deficiencies are revealed during any test, such deficiencies shall be corrected and the tests shall be reconducted until the results of the tests are within specified allowances.

-- END OF SECTION --

SUBDIVISION 02.6

02619 CORRUGATED POLYETHYLENE PIPE

PHASE I
DIVISION 02 – SITE WORK

SECTION 02619
CORRUGATED POLYETHYLENE PIPE
(SOLID AND PERFORATED)

TALE OF CONTENTS

INTRODUCTION

This guide specification was created specifically for the set of specifications.

PART 1 GENERAL

1.1 SUMMARY

1.1.1 Measurement

Not used.

1.2 REFERENCES

a. AASHTO M252-90 - Corrugated Polyethylene Drainage Tubing
b. AASHTO M294-90 - Corrugated Polyethylene Pipe, 12- to 36 in. Diameter
c. ASTM F 405-89 - Standard Specification for Corrugated Polyethylene (PE) Tubing and Fittings.
d. ASTM F 667- 85 - Standard Specification of Large Diameter Corrugated Polyethylene Tubing and Fittings.
e. ASTM D 2321-89 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.

1.3 SUBMITTALS

a. Product literature data for pipe materials.
b. Details on trash/animal grates including procedures for attaching to the flared end section.
c. Complete submittals in accordance with Section 01300.

d. The supplier will include pipe certification documentation.

1.4 STORAGE AND HANDLING

The pipe shall not be dropped from the delivery truck. If not on pallets when delivered to site, carefully stack, secure the bottom row of pipe together side-by-side and then place additional pipe on top. If possible, store pipe in a shady location. Comply with manufacturer's recommended handling and storing guidelines.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Corrugated Polyethylene Pipe (Manufactured by ADS Corporation, or equivalent):

Perforated or slotted, high density polyethylene (HDPE) pipe with smooth interior pipe manufactured in accordance with AASHTO M294 with material conforming to ASTM D3350 (or equivalent ADS N12 pipe). Perforations or slots will not exceed 3/8 inch diameter or width respectively to prevent impingement by adjacent aggregate bedding and backfill.

2.1.2 Joints (Coupling Bands) and Fittings:

Pipe joints and fittings shall be supplied by the manufacturer. Couplings shall cover two full corrugations on each annular section of pipe.

PART 3 EXECUTION

3.1 INSTALLATION

Trench, backfill, and compact in accordance with Section 02221. Begin laying pipe from lowest point in proposed line. Lay pipe uniformly to line and grade so finished pipe will present uniform slope. Do not drop pipe into trench or onto uneven grade. Avoid blows with sharp or blunt objects. Avoid abrasion damage and gouging, such as that which may occur by dragging the pipe.

3.3.1 Connections:

Using manufacturer supplied couplings, complete connects to maintain the hydraulic characteristics of the pipe and provide the flexibility the polyethylene pipe accommodates. Provide straight pipe ends for the two pipes to be joined. If cutting of the pipe is required, complete the cut along the centerline of the valleys of the annular corrugations. Follow manufacturer specifications for connections to flared end sections and manholes.

3.2 FIELD QUALITY ASSURANCE

Noticeable variations from true alignment and grade will be considered sufficient cause for rejection of work.

--- END OF SECTION ---

SUBDIVISION 02.7

(NONE)

SUBDIVISION 02.8

(NONE)

SUBDIVISION 02.9

02921 SEEDING

PHASE I
DIVISION 02 - SITE WORK

SECTION 02921
SEEDING

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3.8 SEED ESTABLISHMENT PERIOD
3.8.1 Commencement
3.8.2 Satisfactory Stand of Grass Plants
3.8.2.1 Field Area
3.8.3 Maintenance During Establishment Period
3.8.3.2 Repair or Reinstall
3.8.3.3 Maintenance Record

INTRODUCTION

This guide specification has been modified from the original Corps of Engineers specification entitled "Section 02921- SEEDING".

PART 1 GENERAL

1.1 SUBMITTALS

The following shall be submitted in accordance with Section 01300 SUBMITTALS:

a. Surface Erosion Control Material
b. Equipment; A listing of equipment to be used for the seeding operation.
c. Seed

Prior to the delivery of materials, certificates of compliance attesting that materials meet the specified requirements. Certified copies of the material certificates shall include the following:

a. Seed. Common name, percent pure live seed, minimum percent germination and mixture percent.

1.2 DELIVERY, INSPECTION, STORAGE, AND HANDLING

1.2.1 Inspection

Seed shall be inspected upon arrival at the job site for conformity to species and quality. Seed that is wet, moldy, shall be rejected. Other materials shall be inspected for compliance with specified requirements.

1.2.2 Storage

Materials shall be stored in designated areas. Seed shall be stored in cool, dry locations away from contaminants.

1.2.3 Handling

Except for bulk deliveries, materials shall not be dropped or dumped from vehicles.

1.2.4 Time Limitation

Hydro seeding time limitation for holding seed in the slurry shall be a maximum 24 hours.

PART 2PRODUCTS

2.1 SEED

2.1.1 Seed Classification

State-approved seed of the latest season's crop shall be provided in original sealed packages bearing the producer's guaranteed analysis for percentages of purity, germination, and mixture.

2.1.2 Temporary/permanent Seed Species and Mixtures

Temporary/permanent seed species and mixtures shall be proportioned by weight as follows (not required for river beds):

Common Name	Min % Purity	Min % Germination	Mixture Amount
Kentucky Bluegrass	85%	80%	45%
Creeping Red Fescue	97%	80%	35%
Perennial Ryegrass	95%	90%	5%
White Clover	95%	90%	15%

2.1.3 Seed Mixing

The mixing of seed may be done by the seed supplier prior to delivery, or on site as directed.

2.1.4 Substitutions

Substitutions will not be allowed without written request and approval from the PROJECT MANAGER.

2.2 TOPSOIL

Stockpiled topsoil remaining from the stripping activities MAY be used if tests show that PCB concentrations are < 1 ppm. Imported clean topsoil shall consist of silty loam with less than 2% organic materials, OR equivalent soil that also results in a moderate erodibility factor as used in the Universal Soil Loss Equation (USLE). Topsoil will be placed to a thickness necessary to support the root zone of the grass seeding (approximately 6 inches).

2.3 MULCH

Mulch shall be free from weeds, mold, and other deleterious materials. Mulch materials shall be native to the region.

2.3.1 Straw

Straw shall be stalks from oats, wheat, rye, barley, or rice, furnished in air-dry condition and with a consistency for placing with commercial mulch-blowing equipment.

2.3.2 Hay

Hay shall be native hay, sudan-grass hay, broomsedge hay, or other herbaceous mowings, furnished in an air-dry condition suitable for placing with commercial mulch-blowing equipment.

2.4 WATER

Water shall be the responsibility of the CONTRACTOR, unless otherwise noted. Water shall not contain elements toxic to plant life.

2.5 SURFACE EROSION CONTROL MATERIAL

Surface erosion control material shall conform to the following:

2.5.1 Surface Erosion Control Blanket

Blanket shall be machine produced mat of wood excelsior formed from a web of interlocking wood fibers; covered on one side with either knitted straw blanket-like mat construction; covered with biodegradable plastic mesh; or interwoven biodegradable thread, plastic netting, or twisted kraft paper cord netting.

2.5.2 Surface Erosion Control Fabric

Fabric shall be knitted construction of polypropylene yarn with uniform mesh openings 3/4 to 1 inch square with strips of biodegradable paper. Filler paper strips shall have a minimum life of 6 months.

2.5.3 Surface Erosion Control Net

Net shall be heavy, twisted jute mesh, weighing approximately 1.22 pounds per linear yard and 4 feet wide with mesh openings of approximately 1 inch square.

PART 3 EXECUTION

3.1 INSTALLING SEED TIME AND CONDITIONS

3.1.1 Seeding Time

Seed shall be installed from first of May to end of June for spring establishment; from first of July to end of August for summer establishment; and from first of September to end of October for fall establishment.

3.1.2 Seeding Conditions

Seeding operations shall be performed only during periods when beneficial results can be obtained. When drought, excessive moisture, or other unsatisfactory conditions prevail, the work shall be stopped when directed. When special conditions warrant a variance to the seeding operations, proposed alternate times shall be submitted for approval.

3.2 SITE PREPARATION

3.2.1 Finished Grade and Topsoil

The CONTRACTOR shall verify that finished grades are as indicated on drawings, and the placing of topsoil, smooth grading, and compaction requirements have been completed, prior to the commencement of the seeding operation.

3.2.2 Prepared Surface

3.2.2.1 Preparation

The prepared surface shall be a maximum 1 inch below the adjoining grade of any surfaced area. New surfaces shall be blended to existing areas. The prepared surface shall be completed with a light raking to remove debris.

3.2.2.2 Field Area Debris

Debris and stones over a minimum 3 inch in any dimension shall be removed from the surface.

3.2.2.3 Protection

Areas with the prepared surface shall be protected from compaction or damage by vehicular or pedestrian traffic and surface erosion.

3.3 INSTALLATION

Prior to installing seed, any previously prepared surface compacted or damaged shall be reworked to meet all specified requirements. Seeding operations shall not take place when the wind velocity will prevent uniform seed distribution.

3.3.1 Installing Seed

Seeding method shall be Broadcast Seeding, or Hydroseeding. Seeding procedure shall ensure even coverage. Gravity feed applicators, which drop seed directly from a hopper onto the prepared soil, shall not be used because of the difficulty in achieving even coverage, unless otherwise approved. Absorbent polymer powder shall be mixed with the dry seed at the rate recommended by the manufacturer.

3.3.1.1 Broadcast Seeding

Seed shall be uniformly broadcast at the rate of 1 ½ pounds per 1000 square feet using broadcast seeders. Half the total rate of seed application shall be broadcast in 1 direction, with the remainder of the seed rate broadcast at 90 degrees from the first direction. Seed shall be covered a maximum 1/4 inch depth by disk harrow, steel mat drag, cultipacker, or other approved device.

3.3.1.2 Hydroseeding

Seed shall be mixed to ensure broadcast at the rate of 1 ½ pounds per 1000 square feet. Seed and fertilizer shall be added to water and thoroughly mixed to meet the rates specified. The time period for the seed to be held in the slurry shall be a maximum 24 hours. Slurry shall be uniformly applied under pressure over the entire area. The hydro seeded area shall not be rolled.

3.3.2 Mulching

3.3.2.1 Hay or Straw Mulch

Hay or straw mulch shall be spread uniformly at the rate of 2 tons per acre. Mulch shall be spread by hand, blower-type mulch spreader, or other approved method. Mulching shall be started on the windward side of relatively flat areas or on the upper part of steep slopes and continued uniformly until the area is covered. The mulch shall not be bunched or clumped. Sunlight shall not be completely excluded from penetrating to the ground surface. All areas installed with seed shall be mulched on the same day as the seeding. Mulch shall be anchored immediately following spreading.

3.3.3 Watering Seed

Watering shall be started immediately after completing the seeding of an area. Water shall be applied to supplement rainfall at a rate sufficient to ensure moist soil conditions to a minimum 1 inch depth. Run-off and puddling shall be prevented. Watering trucks shall not be driven over turf areas, unless otherwise directed. Watering of other adjacent areas or plant material shall be prevented.

3.4 SURFACE EROSION CONTROL

3.4.1 Surface Erosion Control Material

Where indicated or as directed, surface erosion control material shall be installed in accordance with manufacturer's instructions. Placement of the material shall be accomplished without damage to installed material or without deviation to finished grade.

3.5 QUANTITY CHECK

For materials provided in bags, the empty bags shall be retained for recording the amount used. For materials provided in bulk, the weight certificates shall be retained as a record of the amount used. The amount of material used shall be compared with the total area covered to determine the rate of application used. Differences between the quantity applied and the quantity specified shall be adjusted as directed.

3.6 RESTORATION AND CLEAN UP

3.6.1 Restoration

Existing turf areas, pavements, and facilities that have been damaged from the seeding operation shall be restored to original condition at CONTRACTOR's expense.

3.6.2 Clean Up

Excess and waste material shall be removed from the seeded areas and shall be disposed offsite. Adjacent paved areas shall be cleaned.

3.7 PROTECTION OF INSTALLED AREAS

Immediately upon completion of the seeding operation in an area, the area shall be protected against traffic or other use by erecting barricades and providing signage as required, or as directed.

3.8 SEED ESTABLISHMENT PERIOD

3.8.1 Commencement

The seed establishment period to obtain a healthy stand of grass plants shall begin on the first day of work under this contract and shall end 3 months after the last day of the seeding operation. Written calendar time period shall be furnished for the seed establishment period. When there is more than 1 seed establishment period, the boundaries of the seeded area covered for each period shall be described. The seed establishment period shall be modified for inclement weather, shut down periods, or for separate completion dates of areas.

3.8.2 Satisfactory Stand of Grass Plants

Grass plants shall be evaluated for species and health when the grass plants are a minimum 1 inch high.

3.8.2.1 Field Area

A satisfactory stand of grass plants from the seeding operation for a field area shall be a minimum 10 grass plants per square foot. The total bare spots shall not exceed 2 percent of the total seeded area.

3.8.3 Maintenance During Establishment Period

Maintenance of the seeded areas shall include eradicating weeds, insects and diseases; protecting embankments and ditches from surface erosion; maintaining erosion control materials and mulch; protecting installed areas from traffic; and watering.

3.8.3.1 Repair or Reinstall

Unsatisfactory stand of grass plants and mulch shall be repaired or reinstalled, and eroded areas shall be repaired.

3.8.3.2 Maintenance Record

A record of each site visit shall be furnished, describing the maintenance work performed; areas repaired or reinstalled; and diagnosis for unsatisfactory stand of grass plants.

-- END OF SECTION --

DIVISION 13 – SPECIAL CONSTRUCTION

SUBDIVISION 13.0

(NONE)

SUBDIVISION 13.1

(NONE)

SUBDIVISION 13.2

13285 REMOVAL AND DISPOSAL OF PCB IMPACTED MATERIALS

PHASE I
DIVISION 13 - SPECIAL CONSTRUCTION (TSCA)

SECTION 13285
REMOVAL AND DISPOSAL OF PCB CONTAMINATED SOILS

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INTRODUCTION

This guide specification has been modified from the original Corps of Engineer specification entitled "Section 13285N – REMOVAL AND DISPOSAL OF PCB CONTAMINATED SOILS".

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

a. ASTM D 4397 (1996) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
b. 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response
c. 29 CFR 1910.145 Accident Prevention Signs and Tags
d. 29 CFR 1910.1000 Air Contaminants
e. 40 CFR 761 Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
f. 40 CFR 761.75 Chemical Waste Landfills
g. 49 CFR 171 General Information, Regulations, and Definitions
h. 49 CFR 172 Hazardous Materials, Tables, and Hazardous Materials Communications Regulations
i. 49 CFR 173 Shipments and Packagings
j. 49 CFR 174 Carriage by Rail
k. 49 CFR 176 Carriage by Vessel
l. 49 CFR 177 Carriage by Public Highway
m. 49 CFR 178 Shipping Container Specification
n. 49 CFR 179 Tank Cars
o. EPA 530/F-93/004 (1986) Evaluating Solid Waste (Physical/Chemical Methods)
p. EPA 560/5-86-017 (1986) Grid Sampling of PCB Spill Sites to Verify Cleanup

1.2 DEFINITIONS

1.2.1 PCB and PCBs (Polychlorinated Biphenyls)

40 CFR 761. PCB and PCBs means any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contain such substance.

1.2.2 PCB Contaminated Soil

Soils exceeding project specific action levels.

1.2.3 PCB Contaminated Water

Groundwater containing greater than 0.03 parts per billion (ppb) dissolved phase PCBs. Surface water containing greater than 0.5 ppb.

1.2.4 Permissible Exposure Limits (PEL)

PEL for PCBs is 3.10 E-08 pound per cubic feet on an 8-hour time weighted average basis.

1.3 DESCRIPTION OF WORK

The work includes removal and disposal of PCB contaminated soils. Perform work in accordance with 40 CFR 761, 29 CFR 1910.120, and the requirements specified herein. Excavate to the horizontal and vertical limits of the identified contaminated soil as indicated on the construction drawings and as determined by field sampling. After removing contaminated soil as indicated, sample, test, and excavate as specified by the PROJECT MANAGER.

1.3.1 Existing Conditions

PCB contaminant levels range from "not detected" to over 1000 ppm.

1.4 QUALITY ASSURANCE

1.4.1 Training

Instruct employees on the dangers of PCB exposure, on respirator use, decontamination, and applicable OSHA and EPA regulations.

1.4.2 Regulation Documents

Maintain at the job site one readily available copy each of 29 CFR 1910.1000, 40 CFR 761, and all CONTRACTOR prepared plans required under "Submittals" paragraphs.

1.4.3 PCB Contaminated Soil Removal Plan

PCB contaminated soils are present in the following areas at the Site: riverbank soils, plant backyard soils, flood control berm soils and in soils that are to be excavated during the construction of the GMIT. The following requirements shall be incorporated into the Contractors work plan:

1. Soil excavated from the GMIT shall not be used as backfill unless approved by the PROJECT MANAGER.
2. Soil is to be characterized for disposal at a minimum frequency of one sample per 250 cubic yards.
3. Excavated soil that contains PCBs < 1 mg/kg may be used onsite as fill as approved by the PROJECT MANAGER.
4. CONTRACTOR equipment used to haul PCB contaminated materials onsite shall be free of defects which may result in the spilling of PCB contaminated materials onsite.

Prepare and submit, a minimum of 15 calendar days prior to initiating work, a plan describing methods, techniques, and phases of dealing with the contaminated soil, including: a schedule to be employed in the excavation, a sequence of operations, the method of excavation, hauling, and handling of the contaminated materials, and the proposed equipment. Define the CONTRACTOR's source for fill and method for importing the fill material. Define the CONTRACTOR's staging area requirements. Ensure that work operations or processes involving PCB-contaminated materials are conducted in accordance with 40 CFR 761 and the applicable requirements of this section, including but not limited to:

a. Obtaining advance approval of PCB storage sites.
b. Notifying PROJECT MANAGER prior to commencing the operation.
c. Reporting leaks and spills to the PROJECT MANAGER.
d. Cleaning up spills.
e. Maintaining an access log of employees working in a PCB control area and providing a copy to the PROJECT MANAGER upon completion of the operation.
f. Inspecting PCB and PCB-contaminated items and waste containers for leaks and forwarding copies of inspection reports to the PROJECT MANAGER.
g. Maintaining a spill kit
h. Maintaining inspection, inventory, and spill records.

1.4.4 PCB Contaminated Water Handling Plan

Prepare and submit plan detailing methods and techniques for collection and treatment as needed of PCB contaminated water. CONTRACTOR to incorporate additional management and testing, requirements as provided in the "Water Management Plan" prepared by PROJECT MANAGER.

1.4.5 Sampling and Testing Plan

Sampling and testing will be performed in accordance with the FSP and QAPP. The FSP outlines procedures for decontamination during site activities. Soil is to be characterized for disposal at a minimum frequency of one sample per 250 cubic yards. A composite sample consisting of eight grab samples shall be collected.

Water to be sampled and tested and as provided in the Water Management Plan.

1.4.6 PCB Disposal Plan

Submit a PCB Disposal Plan no more than 15 calendar days after award of contract for PROJECT MANAGER's approval. Comply with applicable requirements of Federal, State, and local PCB waste regulations and address:

a. Identification of PCB wastes associated with the work.
b. Estimated quantities of wastes to be generated and disposed of.
c. Names and qualifications of each CONTRACTOR that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and a 24-hour point of contact. Furnish two

copies of EPA, State and local PCB waste permits and EPA identification numbers.

d. Names and qualifications (experience and training) of personnel who will be working on-site with PCB wastes.
e. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
f. Spill prevention, containment, and cleanup contingency measures to be implemented.
g. Location of state certified weigh station.
h. Work plan and schedule for PCB waste containment, removal, and disposal. Clean up and containerize wastes daily.

1.4.8 Closeout Report

Prepare closeout report containing following items: test results including readings and locations, a diagram of the limits of the excavated area with sample locations indicated (indicate reference benchmark used), chain of custody forms, certificates of disposal, truck manifests, and description of the work completed.

1.5 SUBMITTALS

Submit a plan which addresses the following:

a. Field Screening Test
b. Protection Plan
c. PCB Contaminated Soil and Water Management Plan
d. Training certification
e. PCB Disposal Plan
f. Shipping documentation
g. Vehicle decontamination verification
h. Borrow site testing
i. Certificate of Disposal
j. Closeout Report

PART 2 PRODUCTS

2.1 FIELD SCREENING TEST

Field test capable of detecting PCBs down to at least 1 ppm, with less than 5 percent false negatives, and providing on site results within 2 hours of taking sample. Field screening tests may not be used in lieu of verification samples.

PART 3 EXECUTION

3.1 PROTECTION OF WORKERS AND THE ENVIRONMENT

Protect workers and the environment from PCB hazards in accordance with the PCB protection plan and, as a minimum, as specified herein.

3.1.1 Worker Safety

Provide portable decontamination facilities. Workers shall wear and use PPE upon entering a PCB control area. If PPE is not required, specify this in the PCB removal work plan. Keep work footwear inside work area until completion of the job. Do not carry out PCB handling operations in confined spaces. Do not delay aid to a seriously injured worker for reasons of decontamination.

3.1.2 PCB Control Area

Establish a PCB control area to prevent unauthorized entry of personnel. Rope off area and provide 29 CFR 1910.145 signs at approaches and around perimeter. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Allow only personnel briefed on the elements and trained as specified herein into the area. Do not permit food, drink, or smoking materials in the control area. Smoking is not permitted within 50 feet of the PCB control area. Provide "No Smoking" signs as directed by the PROJECT MANAGER.

3.1.3 Special Hazards

Do not expose PCBs to open flames or other high temperature sources since toxic decomposition by-products may be produced. Do not heat PCBs to temperatures of 135 degrees F or higher without PROJECT MANAGER's concurrence.

3.2 PCB SPILL PREVENTION

Use appropriate vehicles and operating practices to prevent spillage or leakage of contaminated materials from occurring during operations. Inspect vehicles leaving the contaminated soil removal site to ensure that no contaminated soil adheres to the wheels or undercarriage. Immediately report any spills to the PROJECT MANAGER and provide cleanup in accordance with 40 CFR 761, Subpart G.

3.3 EXCAVATION PROCEDURES

Use methods and equipment that result in minimal disturbance to remaining soil beyond the excavation limits. Remove and dispose of any material that becomes contaminated as a result of the CONTRACTOR's operation at no additional cost to the PROJECT MANAGER. Stage operations to minimize the time the contaminated soil is exposed to the weather. Provide protection measures around the area of contaminated soils to divert runoff of water from within the excavation boundaries.

3.3.1 Underground Utilities

Location of the existing utilities indicated is approximate and other underground utilities may be present. Scan the construction site with electromagnetic and sonic equipment and mark the surface of the ground where existing underground utilities are discovered. Physically verify the location and elevation of the existing utilities indicated prior to starting construction. If utilities other than those indicated are found, stop work and contact the PROJECT MANAGER. Protect existing utilities from damage and intrusion of PCBs.

3.3.2 Dust Control

Maintain strict dust control at all times to prevent dust particles with PCB attached from becoming airborne. Sprinkle or treat the soil at the site and other areas disturbed by operations with dust suppressants or water.

3.3.3 Excavation Limits

Remove contaminated soil to the horizontal and vertical limits as indicated. Verify the limits of clean soils by testing and sampling. Handle and dispose of material within this area as PCB contaminated. After excavation to the indicated limits, conduct an analysis of the excavation to determine if any remaining PCB contaminated soils exist. Collect samples and test in accordance with the FSP. When test screening results show PCB concentrations below the contamination level, test using confirmation sampling and testing. If groundwater is encountered prior to reaching the vertical limits, notify the PROJECT MANAGER. Additional excavation of PCB contaminated soils may be directed by the PROJECT MANAGER.

3.3.3.1 Field Screening

Collect soil samples in accordance with the FSP, QAPP, and Verification Sampling Plan.

3.3.3.2 Confirmation Sampling and Testing

Confirmation Sampling and Testing shall be in accordance with the FSP, QAPP, and Verification Sampling Plan. Field screening kit results will not be used in lieu of laboratory results.

3.3.4 Additional Excavations

If field screening results indicate the PCB contaminated soils remain, continue excavation horizontal and vertical limits as required. Collect and analyze additional confirmation samples in the new excavation areas. Screen and analyze after each excavation episode as required.

3.3.5 Stockpiled Material

Place soil/sediment removed from the excavation in the staging area/river respectively. Divert water from the area. Cover area with polyethylene sheeting. Place excavated soil on the impervious barrier and cover with 6 mil polyethylene sheeting. Provide berm around the outer limits of the area. Secure edges of sheets to keep the polyethylene sheeting in place. Cover excavated contaminated soil at all times when not being worked. Maintain sheeting and replace when worn or ripped. As an option, soil may be stockpiled in trucks suitable for carrying PCB contaminated soils as specified herein.

3.3.5.1 Composite Testing of Stockpiled Material

Take composite samples from stockpiled material prior to removing from site. Analyze a minimum of one composite sample for every 250 cubic yards or fraction thereof of soil to be disposed of from any one site. To develop a composite sample of the size necessary to run the required tests, take several samples (a minimum of 8 grab samples) from different

areas along the surface and in the center of the stockpile. Combine these samples and thoroughly mix to develop the composite sample.

3.4 CONTAMINATED WATER

Collect washwater. Collect ground, surface, and rain water contaminated by operations including water collected in the open excavation pit or temporary containment. Containerize, sample, and analyze PCB absorbed material and treat of as specified in Water Management Plan.

3.5 COLLECTION, TREATMENT, AND DISCHARGE OF PCB-CONTAMINATED WATER

Furnish labor, materials, and equipment necessary for collecting, treating, and discharging of PCB-contaminated surface and subsurface water in excavations at the site. Conduct excavation and backfilling operations at the site in a manner that minimizes the amount of surface and subsurface water which may collect in the open excavation. Collect standing surface water in contact with PCB contaminated material.

3.5.1 Subsurface Drainage

Remove water by pumping or other methods to prevent softening of surfaces exposed by excavation. Provide water treatment necessary to treat water to levels specified herein. Operate dewatering system continuously until construction work below existing water levels is complete.

3.5.2 Treatment System Requirements

The CONTRACTOR shall be responsible for all aspects of verifying design parameters: designing, providing, installing, operating, maintaining, and removing collection, storage, and treatment facilities as required to discharge treated waters within the treatment limits required.

3.5.3 Treatment System Operations

Monitor, test, and adjust the treatment system in accordance with the Water Management Plan, or as otherwise modified by special regulatory requirements. If there is a conflict between requirements, the more stringent requirement shall prevail.

3.5.4 Discharge of Treated Water

Discharge treated water in accordance with the requirements outlined in the Water Management Plan. Provide erosion control at outlet of piping to minimize erosion.

3.6 TRANSPORTATION AND DISPOSAL

Furnish labor, materials, and equipment necessary to store, transport, and dispose of PCB contaminated material in accordance with Federal, State, and local requirements. Prepare and maintain waste shipment records and manifests required by the Resource Conservation and Recovery Act (RCRA), U.S. Federal Department of Transportation (DOT), and State transportation department.

3.6.1 Transportation

Transport PCB contaminated soils in vehicles designed to carry PCB contaminated soils in accordance with Federal and State requirements. Transport PCB contaminated solid material, articles, or equipment in containers with removable heads. In addition to those requirements:

a. Inspect and document vehicles and containers for proper operation and covering. Repair or replace damaged containers.
b. Inspect vehicles and containers for proper markings, manifest documents, and other requirements for waste shipment.
c. Perform and document decontamination procedures prior to leaving the worksite and again before leaving the disposal site.

3.6.1.1 Weight Certification

Weigh vehicles transporting PCB contaminated materials at a State-certified weigh scale.

3.6.1.2 Shipping Documentation

Before transporting the PCB waste, sign and date the manifest acknowledging acceptance of the PCB. Return a signed copy before leaving the job site. Ensure that the manifest accompanies the PCB waste at all times. Submit transporter certification of notification to EPA of their PCB waste activities and EPA identification numbers. Within 30 days from shipment date, the transporter shall provide a copy of the manifest signed and dated by the disposer.

3.6.2 Disposal

Dispose of PCB contaminated soils in accordance with 40 CFR 761. The disposer shall forward a copy of the manifest to the PROJECT MANAGER within 30 days of receipt of PCBs.

3.6.2.1 Certificate of Disposal

Submit certificate of disposal to the PROJECT MANAGER within 30 calendar days of the date that the disposal of the PCB waste identified on the manifest was completed. Include:

a. The identity of the disposal facility, by name, address, and EPA identification number.
b. The identity of the PCB waste affected by the Certificate of Disposal including reference to the manifest number for the shipment.
c. A statement certifying the fact of disposal of the identified PCB waste, including the date(s) of disposal, and identifying the disposal process used.
d. A certification as defined in 40 CFR 761, Section 3.

3.7 CLEANUP

Maintain surfaces of the PCB control area free of accumulations of PCBs. Restrict the spread of dust and debris; keep waste from being distributed over work area. Do not remove the PCB control area and warning signs prior to the PROJECT MANAGER's approval. Re-clean areas visually showing residual PCBs.

3.7.1 Solvent Cleaning

Clean contaminated tools, containers, etc., after use by rinsing three times with an appropriate solvent or by wiping down three times with a solvent wetted rag. Suggested solvents are Stoddard solvent or hexane.

3.8 REPORTS

Prepare and submit a remediation closeout report at the completion of the work.

3.9 BACKFILLING, GRADING, TOPSOILING, AND SEEDING

Commence backfilling of the excavation within 10 calendar days after receiving confirmatory test results that indicate no further PCB contamination is present. Soils brought in from off site for use as backfill shall contain less than one part per million (ppm) PCBs. Provide borrow site testing for PCBs from composite sample of material from borrow site, with at least one test from each borrow site. Material shall not be brought on site until tests have been approved by the PROJECT MANAGER. Provide backfill, compaction, grading, and seeding in accordance with specifications.

– END OF SECTION –

DIVISION 16 – ELECTRICAL

SUBDIVISION 16.1

(NONE)

SUBDIVISION 16.2

16302 UNDERGROUND TRANSMISSION AND DISTRIBUTION

PHASE I
DIVISION 16 - ELECTRICAL

SECTION 16302
UNDERGROUND TRANSMISSION AND DISTRIBUTION

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INTRODUCTION

This guide specification has been modified from the original Corps of Engineer specification entitled "Section 16302N – UNDERGROUND TRANSMISSION AND DISTRIBUTION".

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

a. ANSI C2 (1997) National Electrical Safety Code
b. ANSI C119.1 (1986; R 1997) Electrical Connectors – Sealed Insulated Underground Connector Systems Rated 600 Volts
c. ASTM B 1 (1995) Hard-Drawn Copper Wire
d. ASTM B 8 (1995) Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft

e. ASTM F 512 (1995) Smooth-Wall Poly (Vinyl Chloride) (PVC) Conduit and Fittings for Underground Installation
f. NEMA TC 8 (1990) Extra-Strength PVC Plastic
g. NFPA 70 (1999) National Electrical Code
h. UL 83 (1998) Thermoplastic-Insulated Wires and Cables
i. UL 467 (1993; Bul. 1994, R 1996) Grounding and Bonding Equipment
j. UL 486A (1997; R 1998) Wire Connectors and Soldering Lugs for Use With Copper Conductors
k. UL 510 (1994; R 1998) Chloride, Polyethylene, and Rubber Insulating Tape
l. UL 651 (1995; R 1998) Schedule 40 and 80 Rigid PVC Conduit

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

2.1.1 Conduit

2.1.1.1 Plastic Conduit for Direct Burial

NEMA TC 2, EPC-40-PVC or EPC-80-PVC.

2.1.2 Fittings

2.1.2.1 PVC Conduit Fittings

NEMA TC 3 UL 514B UL651.

2.1.3 Conductors Rated 600 Volts and Less

2.1.3.1 600 Volt Wires and Cables

Conductors in conduit shall conform to UL 83, Type THWN. Conductors shall be color coded. Conductor identification shall be provided within each enclosure where a tap, splice, or termination is made. Conductor identification shall be by color-coded insulated conductors, plastic-coated self-sticking printed markers, colored nylon cable ties and plates, or heat shrink type sleeves. Conductors No. 10 - 12 AWG shall be solid copper.

a. Colors for coding conductors shall be:

120-VOLT SYSTEM

Neutral – White
Phase A – Black
Phase B – Red
Phase C – Blue
Ground – Green

2.1.4 600 Volt Wire Connector and Terminals

Shall provide a uniform compression over the entire contact surface. Solderless terminal lugs shall be used on stranded conductors.

a. For use with copper conductors: UL 486A

2.1.5 600 Volt Splices

Provide splices with a compression connector on the conductor and by insulating and waterproofing using one of the following methods which are suitable for continuous submersion in water and comply ANSI C119.1

a. Provide heat shrinkable splice insulation by means of a thermoplastic adhesive sealant material which shall be applied by a clean burning propane gas torch.

b. Provide a cold-shrink rubber splice which consists of EPDM rubber tube which has been factory stretched onto a spiraled core which is removed during splice installation. The installation shall not require heat or flame, or any additional materials such as covering or adhesive. It shall be designed for use with inline compression type connectors, or indoor, outdoor, direct-burial or submerged locations.

2.1.6 Tape

2.1.6.1 Insulating Tape

UL 510, plastic insulating tape, capable of performing in a continuous temperature environment of 80 degrees C.

2.1.6.2 Buried Warning and Identification Tape

Provide detectable aluminum foil plastic-backed tape or detectable magnetic plastic tape manufactured specifically for warning and identification of buried cable and conduit. Tape shall be detectable by an electronic detection instrument. Provide tape in rolls, 2 inches minimum width, color coded for the utility involved with warning and identification imprinted in bold black letters continuously and repeatedly over entire tape length. Warning and identification shall be CAUTION BURIED CABLE BELOW or similar. Use permanent code and letter coloring unaffected by moisture and other substances contained in trench backfill material.

2.1.7 Pull Rope

Shall be plastic having a minimum tensile strength of 200 pounds.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Contractor Damage

The CONTRACTOR shall promptly repair any indicated utility lines or systems damage by CONTRACTOR operations Damage to lines or systems not indicated, which are caused by CONTRACTOR operations, shall be treated as

"Changes" under the terms of the contract. If the CONTRACTOR is advised in writing of the location of a nonindicated line or system, such notice shall provide that portion of the line or system with "indicated" status in determining liability for damages. In any event, the CONTRACTOR shall immediately notify the PROJECT MANAGER.

3.1.2 Underground Conduit/Duct Without Concrete Encasement

Type of conduit shall be EPC-40-PVC or EPC-80-PVC.

3.1.2.1 Conduit Installation

Top of the conduit shall be not less than 24 inches below grade, and shall have a minimum slope of 3 inches in each 100 feet away from any necessary drainage points. Run conduit in straight lines except where a change of direction is necessary. As each conduit run is completed, for conduit sizes less than 3 inches, draw a stiff bristle brush through until conduit is clear of particles of earth, sand and gravel; then immediately install conduit plugs. Provide not less than 3 inches clearance from the conduit to each side of the trench. Grade bottom of trench smooth, where rock, soft spots, or sharp-edged materials are encountered, excavate the bottom for an additional 3 inches, fill and tamp level with original bottom with sand or earth free from particles. Provide color, type and depth of warning tape as specified earlier.

3.1.2.2 Encasement Under Roads and Structures

Under roads, paved areas, and railroad tracks, install conduits in concrete encasement of rectangular cross-section providing a minimum of 3 inch concrete cover around ducts. Concrete encasement shall extend at least 5 feet beyond the edges of paved areas and roads, and 12 feet beyond the rails on each side of railroad tracks. Conduits to be installed under existing paved areas which are not to be disturbed, and under roads and railroad tracks, shall be zinc-coated, rigid steel, jacked into place.

3.1.3 Cable Pulling

Pull cables down grade with the feed-in point at the manhole or buildings of the highest elevation. Use flexible cable feeds to convey cables through manhole opening and into duct runs. Do not exceed the specified cable bending radii when installing cable under any conditions, including turnips into equipment. Cable with tape shield shall have a bending radius not less than 12 times the overall diameter of the completed cable.

3.1.3.1 Cable Lubricants

Cable lubricants shall be soapstone, graphite, or talc for rubber or plastic jacketed cables. Lubricant shall not be deleterious to the cable sheath, jacket, or outer coverings.

3.1.3.2 Cable Pulling Tensions

Tensions shall not exceed the maximum pulling tension recommended by the cable manufacturer.

3.1.4 600 VOLT Cable Splicing and Terminating

Protect terminations of insulated power cables from accidental contact, deterioration of coverings and moisture by providing terminating devices and materials. Install terminations of insulated power cables and cable joints in accordance with the manufacturer's requirements. Make terminations with materials and methods as indicated or specified herein or as designated by the written instructions of the cable manufacturer and termination kit manufacturer.

– END OF SECTION –

Polychlorinated Biphenyl-Impacted Soil Management Plan

Upper River – Phases I and II
Sheboygan River and Harbor Superfund Site

Sheboygan County, Wisconsin

May 2004

ISSUED FOR CONSTRUCTION

Prepared By

Pollution Risk Services, LLC

and

URS Corporation

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1.0 INTRODUCTION

This Polychlorinated Biphenyl (PCB)-Impacted Soil Management Plan has been prepared to document soil management activities to be implemented as part of remedial action required at the Sheboygan River and Harbor Superfund Site, Sheboygan County, Wisconsin. Remedial activities are required to be implemented as set forth in the Record of Decision (ROD), Consent Decree (CD), and Upper River Statement of Work (URSOW).

The Upper River activities associated with the Sheboygan River and Harbor Superfund Site include investigation/remediation of Upper River soft sediments, floodplain soil, and the Tecumseh Products (Tecumseh) Plant Site area. The Upper River activities are to be conducted in two phases: Phase I will address remediation/control of impacted soils and groundwater at the Tecumseh site; Phase II will address investigation/remediation of soft sediments (including near-shore sediments and Area 1) and floodplain soils in the Upper River (from the Tecumseh site to the Walderhaus Dam).

This soil management plan applies to activities to be conducted during Phase I remediation/control. The Scope of Work for Phase I of the Upper River project includes: mobilization; installation of a groundwater monitoring/remediation/control and interceptor trench (GMIT); excavation of PCB-impacted soils from the Tecumseh property (i.e. Source soils in "backyard", Riverbank soils, and soils associated with on-site underground utilities acting as Preferential Pathways); transportation and disposal of hazardous material; transportation and disposal of non-hazardous material; and management of PCB–impacted soil stockpiles and potentially impacted water associated with the activities listed above. All work will be performed in accordance with the Remedial Design Work Plan.

This Plan describes the training requirements, methodologies, techniques, equipment and schedule for removing, characterizing, and transporting PCB-impacted soil.

2.0 TRAINING REQUIREMENTS

All personnel that may come into contact with PCB-impacted materials shall have the following training:

- Site Specific Health and Safety Training in accordance with the Health and Safety Plan.
- 40 Hour Occupational Safety and Health Administration Hazardous Waste Operations and Emergency Response (OSHA HAZWOPER) Training

In addition, at least one person will have Competent Person and 8-hour Site Supervisor Training.

3.0 WORK AREA LIMITS

The following work area limits will be implemented to protect workers and the environment from PCB hazards. Portable decontamination facilities will be provided at ingress/egress locations to minimize the spread and/or cross-contamination from workers and equipment. A PCB controlled area will be established to prevent unauthorized entry of workers. The area will be constructed by roping off the area and providing signs in accordance with 29 CFR 1910.145 at approaches and around perimeter. The locations of the initial site perimeter (fenced area), decontamination facilities, and ingress and egress points (gate) are provided in Phase I, Drawing 8. The location of the PCB controlled area will be determined in the field based on actual conditions within the initial site perimeter. The locations of ingress and egress points may be modified as the work progresses to allow for more efficient access to remedial areas. Signs will be posted at the perimeter of the PCB controlled area to minimize the potential for unauthorized personnel to enter the area. Only specified, trained workers will be permitted into the controlled area. No food, drink, or smoking will be allowed in this area.

4.0 REMOVAL OF PCB-IMPACTED SOIL

4.1.1 Schedule of Excavation

There are four primary areas of excavation associated with the Phase I (Tecumseh Site) remediation that will generate contaminated soils. They include: 1) Soils from the installation of the GMIT and monitoring wells; 2) Source soils in the

"backyard"; 3) Soils associated with on-site underground utilities acting as preferential pathways; and 4) Riverbank soils. The detailed schedule for the remediation of the Phase I area is included as part of the Design Narrative for Phase I.

4.1.2 Sequence of Operation

Each area previously defined has its own sequence of removal operation. The definitive details of each of these operations are presented on the designated Remedial Design Work Plan drawing for that area. Generally, the sequence of operation is as follows: 1) Excavate area according to criteria established in the Field Sampling Plan (FSP); 2) Haul material to designated stockpile (shown of Phase I, Drawing 8. Surface water run-off will be collected and treated in accordance with the procedures established in the Water Management Plan; and 3) Characterize stockpiled to determine the appropriate off-site landfill for disposal. The methods for each of the sequences of operation are presented in the following subsequent sections.

4.1.2.1 Excavation Methods

Prior to initiating excavation activities, underground utilities will be located by scanning the construction site with electromagnetic and sonic equipment, and marking the surface of the ground where existing underground utilities are located. Aboveground utilities will be visually identified. Verification of the location of the identified underground utilities will be provided prior to starting construction (such as hand digging). Excavation activities will temporarily cease upon discovery of previously unknown underground utilities. The use and status (active/abandoned) of the utility will be assessed prior to continuing excavation activities in that area.

Excavation activities will be performed using a backhoe (or hand tools around utilities). Dump trucks/loaders will be used to transport excavated material to the staging/stockpile areas. Haul roads (See Drawing 8) within the stockpile area will

be constructed to provide load-in/load-out zones. Equipment (such as backhoe, dump trucks, etc.) involved with relocating PCB-impacted soils on-site will access the stockpile areas from the east side only. Equipment involved with removal and disposal (i.e. loader and road trucks) of PCB-impacted soils will access the stockpiles from the north side only. This operation will prevent/minimize the chance for cross-contamination.

Methods and equipment (i.e. track hoes, rubber tire hoes, and dump trucks) will be used that result in minimal disturbance to areas that do not require remediation/control. Soil/sediment that becomes contaminated as a result of excavation activities will be removed and disposed. Excavation operations will be staged to minimize the time the contaminated soil is exposed to the weather. In addition, protective measures such as berms and/or poly coverings will be provided to prevent water from entering or exiting the excavation limits.

Dust control measures will be implemented during excavation activities to minimize the potential for generating airborne contaminants. Reference Site Specific Health & Safety Plan Section 11.0. Water trucks will be made available for dust suppression when necessary.

Asphalt pavement, concrete slabs, and structures excavated above or below the ground surface will be removed as follows: 1) Brush to remove loose soil/sediment materials and place soil in appropriate stockpile area; 2) Clean material by washing with fresh water. Rinse the material and collect and treat the washwater prior to disposal; 3) Place material into the appropriate rubble stockpile; and 4) Dispose material at approved disposal facility.

Vegetation that is cleared from a contaminated area will be managed in the following manner: 1) Separate trunk from the root; 2) Remove loose

soil/sediment from the root system; 3) Place soil/sediment in appropriate stockpile area; and 4) Dispose roots at approved disposal facility.

Contaminated soils will be excavated to the horizontal and vertical limits as defined in the Remedial Design Work Plan. Verification sampling will be performed to characterize the soils remaining in place. Contaminated soil will be placed in the designated stockpiled area for disposal.

4.1.2.2 Handling and Transportation

Excavated soils will be placed in the temporary soil stockpile area (Phase I, Drawing 8). Impacted soil stockpiles will be segregated based on PCB concentration to minimize material classified as hazardous. The west parking lot will be used for staging of materials. Stockpiles may include hazardous soil, non-hazardous soil, clean granular drainage fill, and clean earth fill. The stockpiles will be strategically placed to minimize the potential for cross contamination during remedial activities and in the event of an accidental release from an impacted stockpile. The non-hazardous and hazardous soil stockpiles will be constructed per Specification 13285, covered with polyethylene sheeting and will have berms constructed around them to prevent PCB-impacted stormwater run-off, minimize airborne migration, and minimize direct contact risks. Reference project drawings #8 for berm locations and #9 for berm detail.

If inspection indicates stormwater has contacted hazardous soil, stormwater run-off from within the stockpile berm will be pumped to a batch holding tank(s) or directly to the on-site contingency water treatment system for treatment and release/disposal. For detail of the water treatment system, see the Water Management Plan.

All labor, materials, and equipment will be furnished to store and transport PCB-contaminated materials in accordance with Federal, State, and local requirements. In addition, all PCB-contaminated soil material, articles, or equipment will be transported in accordance with state regulations. All vehicles transporting material from the site will be visually inspected and documented for: 1) Proper operation and covering; and 2) Proper markings, manifest documents, and other requirements for waste shipment. A designated loading area for off-site transport vehicles will be maintained free of visible soil and debris. Transport vehicles will be inspected after loading for loose soil, mud, etc.. Decontamination will be performed, as needed, in accordance with SOP #P101.

All vehicles transporting PCB materials will be weighed at a state-certified scale.

Prior to transporting the PCB waste, manifest acknowledging the acceptance of PCB material will be signed and dated. The manifest will accompany the PCB waste at all times during transport. Transporter certification of the PCB waste activities and EPA ID numbers will be submitted to the EPA prior to removal. A signed copy of the manifest will be returned by the driver following disposal.

4.1.2.3 Sampling Methods

During excavation activities, field test kits may be used to screen soils remaining in the remediation area to assess the need for continued excavation. Field screening methodologies are presented in the Field Sampling Plan. If field screening tests indicate PCB concentrations in in-place soils exceed project specific action levels, additional excavation will be conducted until field screening indicates cleanup levels have been achieved. If field screening results indicate PCB concentrations are below the project specific action level, confirmation sampling will be conducted in accordance with Verification Sampling Plan (VSP).

One composite sample, at a minimum, will be analyzed per 250 cubic yards of soil in each stockpile. A minimum of 8 grab samples will be collected from different areas along the surface and in the center of the stockpile. These grab samples will be combined and thoroughly mixed to develop the composite sample. Following receipt of the composite sample analytical results, the soil will be transported to the appropriate disposal facility in a manner consistent with section 4.1.2.2 Handling and Transportation.

4.1.3 Water Treatment

Water collected from monitoring well installation, during the GMIT installation, stormwater run-off from PCB-impacted soils, and decontamination water will be collected and sent to the on-site contingency water treatment system. The water treatment system will be required to: 1) Remove PCB contaminants below the defined limits as provided in the Water Management Plan; 2) Include influent and effluent holding tank(s) designed to permit on-site testing of water quality; 3) Include recycle capabilities for retreatment of the effluent not meeting discharge requirements. A description of the water treatment system and the operating procedures is provided in the Water Management Plan.

5.0 SOIL DISPOSAL

All generated PCB–impacted soil, sediment and established eroded material removed during remedial activities will be disposed in accordance with 40 CFR 761 at a landfill meeting the requirements of 40 CFR 761.75. Each disposal facility shall forward a copy of the waste manifests within 30 days of the receipt of PCB-contaminated material.

PCB-impacted soil will be managed in accordance with all environmental requirements. Soil to be transported from the site will be appropriately characterized to allow for completion of a waste profile sheet. The waste profile sheet and analytical data will be submitted for review and acceptance of the soil by the disposal facility. Upon acceptance,

a waste disposal approval form (Certificate of Disposal) will be provided by the disposal facility. This document will be maintained in the project office on-site throughout the duration of remediation and will include the following information: 1) Identity of the disposal facility (to include: name, address, and EPA I.D. #); 2) Identity of the material covered by the Certificate (to include: manifest number); 3) Statement certifying disposal of the identified material (to include: date(s) of disposal, disposal process used); 4) Certification as defined in 40 CFR 761, Section 3.

6.0 BACKFILLING, GRADING, AND SEEDING

Backfilling of the excavated areas will commence within 10 calendar days after receiving test results indicating the remaining soils contain PCB concentrations below the project specific action level. Backfill material will be stockpiled in areas shown on Phase I, Drawing 8. Material used for backfill will contain less than 1 ppm PCB, as confirmed by testing of composite samples collected from the borrow site (at Project Manager's discretion). Backfilling, compacting, grading, and seeding will be performed according to specifications (See Spec 02220: General Earthwork, 02221: Trenching, Backfilling, and Compacting and Spec 02921: Seeding).

Water Management Plan for Construction Activities

Upper River – Phase I

Sheboygan River and Harbor Superfund Site

Sheboygan County, Wisconsin

May 2004

ISSUED FOR CONSTRUCTION

Prepared By

Pollution Risk Services, LLC

and

URS Corporation

Contents

Appendices

1.0 INTRODUCTION

This Water Management Plan has been prepared to describe and document water management activities to be implemented in association with remedial action required at the Sheboygan River and Harbor Superfund Site, Sheboygan County, Wisconsin. Remedial activities are required to be implemented as set forth in the Record of Decision (ROD), Consent Decree (CD), and Upper River Statement of Work (URSOW). The Plan is also developed in accordance to the requirements of WI Department of Natural Resources (WDNR) Chapter NR-724.13, *Remedial and Interim Action Design, Implementation, Operation, Maintenance and Monitoring Requirements.*

The Upper River activities associated with the Sheboygan River and Harbor Superfund Site include investigation/remediation of Upper River soft sediments, flood plain soil, and the Tecumseh Products (Tecumseh) Plant Site area. The Upper River activities are to be conducted in two phases: Phase I will address remediation/control of impacted soils and groundwater at the Tecumseh site; Phase II will address investigation/remediation of soft sediments (including near shore sediments and Area 1) and flood plain soils in the Upper River (from the Tecumseh site to the Walderhaus Dam). This water management plan applies to activities to be conducted during Phase I remediation/control.

Remedial activities at the Tecumseh site are anticipated to commence during the Spring of 2004. As part of the overall Phase I activities, trench dewatering, stormwater runoff from PCB-impacted soils, and decontamination water will require treatment prior to being discharged into the Sheboygan River. In addition, a groundwater monitoring/interceptor trench (GMIT) and monitoring wells will be installed. Treated water will be discharged to the Sheboygan River. For locations, construction and remediation activities of the Phase I work, reference the Phase I Design Documents and Drawings.

This document outlines the approach to capture, transport, and treat the water at the site during the remediation activities and during the operation of the GMIT, as required.

2.0 CONTINGENCY WATER TREATMENT SYSTEM

The contingency water treatment system (CWTF) will be operated during remediation activities and will treat water generated during GMIT construction activities, stormwater runoff from PCB-impacted soils, monitoring well development, and decontamination. Additionally, the system will be used to treat water generated during operation of the GMIT, as required. Additional accumulation tank(s) will be on-site to dampen the impact of fluctuating flows during construction. The water management approach for each source of PCB-impacted water is discussed in subsequent sections.

The existing CWTF at the site was used to treat PCB-impacted water generated during previous remedial activities and pilot studies performed at the Tecumseh facility. The CWTF is currently located in a heated construction trailer at the site. The CWTF (Appendix A) consists of: (2) chemical (polymer) addition units with flow control pumps, (1) influent sedimentation tank constructed of steel with a pitched bottom capable of 1,800 gallons of operating volume (36 minutes of holding time at 50 gpm), (1) Model H-30 MC Ecowater multimedia filter with an operating pressure of 40-125 psi and design flow rate of 50 gpm (Peak flow rate of 75 gpm), (4) 350 gallon Calgon Disposorb F-300 activated carbon units configured as a duplex system in series. Each unit will hold 1,000 lbs of carbon, with a flow rate of 30 gpm, and can be operated at up to 7.5 psi., and (1) effluent tank constructed of steel with a flat bottom capable of 1,600 gallons of operating volume (32 minutes of holding time at 50 gpm. Water from the above operations will enter the system at a maximum rate of 50 gallons/minute. Two chemical tanks will pump alum and polymer at a field-determined flow rate into the influent stream to aid in separating PCB-impacted particles from the water. The water will then enter the sedimentation tank that will allow detention time for primary settling of solids suspended in the water. The water stream will pass through the multimedia filter and the activated carbon units to treat the water to below the regulated limits. Finally, the water will enter the effluent tank where the stream will overflow and gravity feed into the Sheboygan River.

Discharge piping is currently located aboveground; however, the system may be modified so that discharge piping will be buried at a level below the frost line to prevent freezing. Associated aboveground piping will be insulated and heat traced to prevent freezing.

Five sampling ports will be available in the treatment system. These locations are as follows: SP-1 (Influent sedimentation tank), SP-2 (Influent to the activated carbon units), SP-3 and SP-4 (Between activated carbon pairs), and SP-5 (Effluent). During construction activities, the parameters and limits will

be consistent with prior historical analytical data from site and discharge requirements from the WDNR. These requirements are as follows:

Parameter	Monitoring Frequency	Limit
Total Suspended Solids (TSS)	Once per day	40 mg/l
Total PCB's	Once per day	Non-detect (<0.05 µg/l)

Influent and effluent monitoring frequency will be daily to demonstrate the effectiveness of treatment during the construction and remediation activities.

The system components will be maintained in accordance with the manufacturer's recommendation and the Operations & Maintenance Plan Upper River Phase I. The influent sediment tank will be used to collect backwash from GAC units and filters.

3.0 TRENCH DEWATERING

During construction of the GMIT, groundwater entering the GMIT excavation is estimated at a maximum rate of 30 gallons/minute following the initial dewatering of the trench. Because the water has the potential to be impacted, the water will be collected in the sump at the northeast end of the trench and pumped to CWTF. The pump will be equipped with a float to allow for continuous dewatering during GMIT construction activities. Water will be pumped directly to the treatment system influent sedimentation tank or into poly tanks depending on the location at the site. The water will be treated as discussed in Section 2 and discharged accordingly.

4.0 STORMWATER RUNOFF

To the extent practical, stormwater that contacts PCB-impacted soils will be contained and pumped to the CWTF. However, polyethylene sheeting and diversion berms are to be utilized to minimize the potential for PCB-impacted stormwater runoff. The PCB impacted stormwater runoff will either be pumped to holding tanks or directly to the CWTF based on the volume of water to be treated and the impacts it may have on other water management activities associated with remedial activities. The water will be treated as discussed in Section 2 and discharged accordingly.

5.0 DECONTAMINATION WATER

Equipment used at the site (i.e. hand tools, heavy equipment) will be decontaminated prior to being released from the Site. Decontamination of heavy equipment will be performed using a portable unit as shown on Phase I, Drawing 8. Smaller hand tools will utilize buckets for decontamination. The water used during this process has the potential of being contaminated with PCB-impacted particles. Therefore, decontamination water will be contained in the reservoir provided in the portable unit (heavy equipment) or buckets (hand tools) and pumped directly into the treatment system or polytanks. Decontamination water will be as discussed in Section 2 and discharged accordingly.

6.0 INTERCEPTOR TRENCH GROUNDWATER

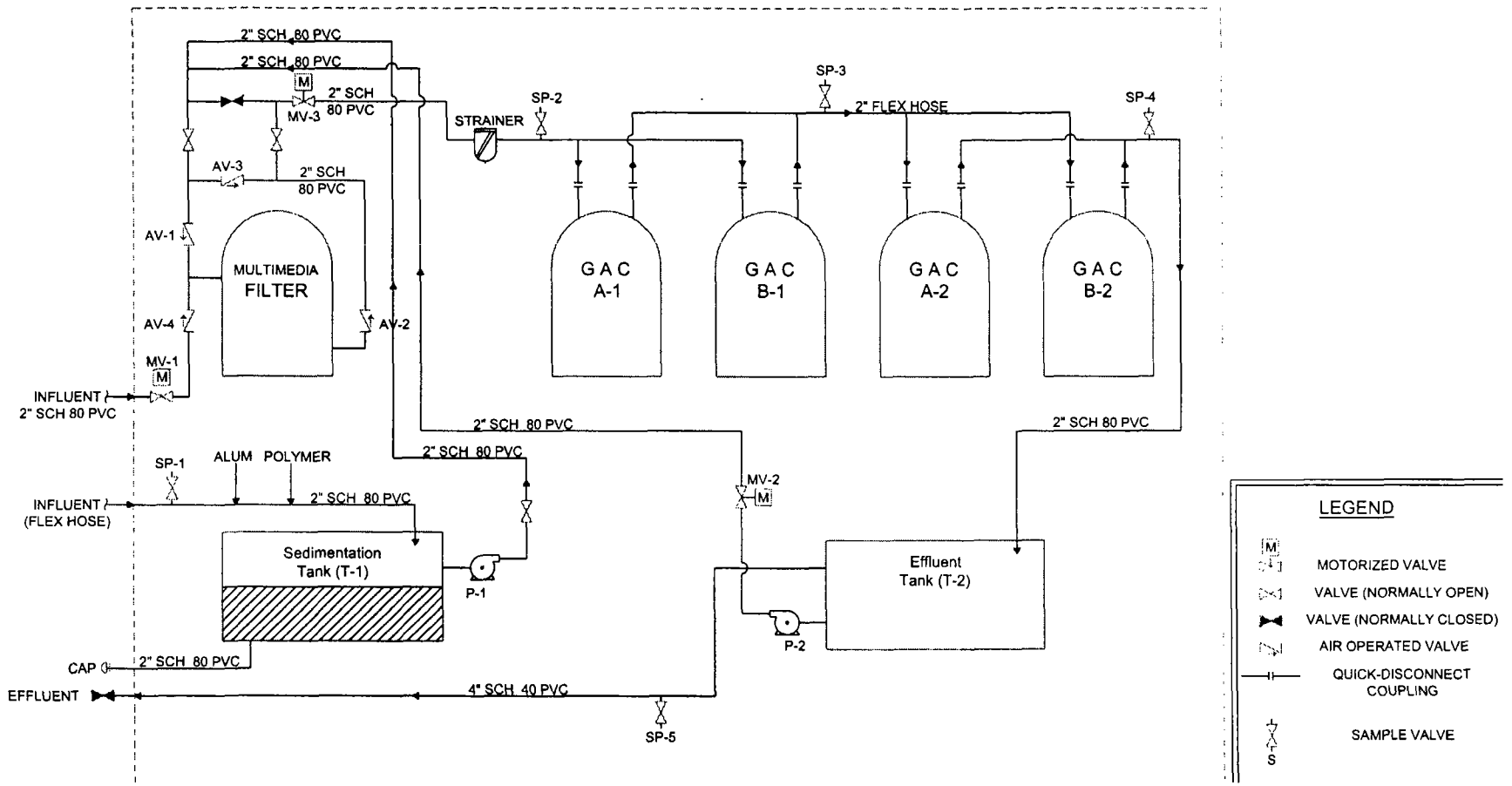
Water collected during the operation of the GMIT will be pumped directly to the CWTF. The pump and conveyance system will be as shown on the Construction Drawings and Specifications. The pump will be automated so that the water level within the sump can determine the on/off frequency.

7.0 CONTINGENCY PLAN

As with all systems, the potential for equipment failure is inherent. Therefore, a contingency plan has been developed to address potential circumstances that may arise during construction activities. Temporary poly holding tanks, Baker frac tanks, or the like will be mobilized as required to provide additional storage capacity for potentially PCB-impacted water. Arrangements for back-up treatment equipment may also be made.

APPENDIX A

CONTINGENCY WATER TREATMENT SYSTEM PROCESS AND INSTRUMENTATION DIAGRAM



SHEBOYGAN_RIVER_SUPERFUND_PROJECT
CONTINGENCY_WATER_TREATMENT_SYSTEM
PROCESS_AND_INSTRUMENTATION_DIAGRAM

DESIGNED BY:				SCALE: NONE	DRAWING:
DRAWN BY:				SHT # -	P&ID
CHECKED BY:				FIG # -	
APPRVD BY:					

APPENDIX B

CONTINGENCY WATER TREATMENT FACILITY OPERATING PROCEDURES

Contingency Water Treatment Facility Operating Procedures

The following outlines detailed operating procedures for the water management system. The system will meet the requirements listed below:

- The treatment and discharge will be operated in full compliance with applicable WPDES regulations;
- Monitoring and reporting will be in full compliance with WPDES regulations; and
- Reports will be considered as part of the O&M Plan.

STAGE 1 – PRIMARY TREATMENT

The impacted water stream from construction activities (i.e. trench dewatering, stormwater runoff, decontamination water, or groundwater) will enter the treatment system where (2) dosing pumps will add alum and polymer to aid in the sedimentation of the suspended solids. The rate of chemical feed will be determined in the field and modified based on the results of Total Suspended Solid (TSS) levels in the effluent stream. The water will then flow into the Influent Sedimentation Tank (T-1) where solids will have sufficient detention time to remove settleable particulates. Sampling point (SP-1) will be used to characterize the initial level of PCBs and TSS prior to treatment. Solids that accumulate in the tank over time will be monitored to determine the frequency of cleaning the tank.

STAGE 2 – SECONDARY TREATMENT

The effluent from the Sedimentation Tank will overflow into a weir box installed at the end of the tank and be pumped (P-1) to the Multimedia Filter. Proper flow will be achieved by activating the air operated valves AV-1, AV-2, and motorized valve MV-3. Air operated valves AV-3, AV-4, and motorized valve MV-2 (Bypass) will be closed. The stream will pass through the Multimedia Filter and through the motorized valve MV-3 (Open). At this point, the stream will be sent through a series of Activated Carbon Units (GAC A-1 and A-2 or GAC B-1 and B-2). The second sampling point (SP-2) will

be utilized at the influent to the activated carbon units. This sampling will aid in determining the efficiency of particulate removal from the Multimedia Filter and determining the frequency of media replacement. The third and fourth samples (SP-3, SP-4) will be collected between the GAC pairs to determine the efficiency of particulate removal and breakthrough.

STAGE 3 – FINAL TREATMENT

After passing through the activated carbon units; the stream will enter the Effluent Tank (T-2). The final sampling point (SP-5) will be located at the outlet of T-2. This sampling point will aid in determining the efficiency of the system. Should the effluent meet discharge requirements, the water will be discharged via gravity to the Sheboygan River. A contingency recycle stream is provided with the system if additional treatment of the effluent is necessary (i.e. not meeting discharge requirement). This can be achieved by using pump P-2 and opening the motorized valve MV-2 until the appropriate PCB and TSS levels are obtained. The discharge goals for this system are to achieve PCB levels of non-detect (<0.05 mg/l) and TSS levels of less than 40 mg/l at a maximum flow rate of 50 gallons/minute. Solids that may accumulate in the tanks will be monitored to determine the frequency of cleaning the tanks.

OPERATIONS AND MAINTENANCE

Samples will be taken at all five sampling points on a monthly basis or as otherwise agreed upon with the USEPA and the WDNR. The samples will be analyzed for PCBs and TSS.

Results of sampling will aid in providing an evaluation of equipment operation and efficiency. If it is determined that the equipment is not operating at an appropriate efficiency or capacity, arrangements will be made to perform maintenance on the equipment. At a minimum, maintenance of equipment will be according to manufacturer's recommendations. Equipment or components of equipment may be replaced if it is deemed prudent to maintain successful operation.

RECD 08 SEPT 2004

WISCONSIN
DEPT. OF NATURAL RESOURCES

Substantive Requirements of a

WPDES PERMIT

For the Sheboygan River Superfund Site - Phase 1 - Discharge From the Former Tecumseh Plant Site to the Sheboygan River

1 Surface Water Requirements

1.1 Sampling Point(s)

The discharge(s) shall be limited to the waste type(s) designated for the listed sampling point(s).

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
001	Remedial action wastewater from Phase 1 cleanup activities on the former Tecumseh Products site including contaminated groundwater from an interceptor trench, stormwater runoff and equipment decontamination water will be pumped and treated by addition of alum and polymer, sedimentation, multimedia filtration and activated carbon prior to discharge to the Sheboygan River.

1.2 Monitoring Requirements and Effluent Limitations

The permittee shall comply with the following monitoring requirements and limitations.

1.2.1 Sampling Point (Outfall) 001 - Treated Remedial Action WW

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		gpd	Daily	Continuous	
Suspended Solids, Total	Daily Max	10 mg/L	Daily	24-Hr Comp	
PCB Total	Daily Max	Nondetectable µg/L	Daily	24-Hr Comp	The limit for total, PCBs is nondetectable using test method SW 846 8082 (expected detection levels of 0.05 to 0.1 µg/L)
Oil & Grease (Hexane)		mg/L	Quarterly	24-Hr Comp	Quarterly monitoring ends 12/31/05 except as otherwise notified
pH Field		su	Quarterly	Grab	Quarterly monitoring ends 12/31/05 except as otherwise notified
BOD_5, Total		mg/L	Quarterly	24-Hr Comp	Quarterly monitoring ends 12/31/05 except as otherwise notified
Nitrogen, Ammonia (NH_3-N) Total		mg/L	Quarterly	24-Hr Comp	Quarterly monitoring ends 12/31/05 except as otherwise notified
Cadmium, Total Recoverable		mg/L	Quarterly	24-Hr Comp	Quarterly monitoring ends 12/31/05 except as otherwise notified

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Copper, Total Recoverable		mg/L	Quarterly	24-Hr Comp	Quarterly monitoring ends 12/31/05 except as otherwise notified
Lead, Total Recoverable		mg/L	Quarterly	24-Hr Comp	Quarterly monitoring ends 12/31/05 except as otherwise notified
Nickel, Total Recoverable		mg/L	Quarterly	24-Hr Comp	Quarterly monitoring ends 12/31/05 except as otherwise notified
Zinc, Total Recoverable		mg/L	Quarterly	24-Hr Comp	Quarterly monitoring ends 12/31/05 except as otherwise notified
PAHs		µg/L	Quarterly	24-Hr Comp	Quarterly monitoring ends 12/31/05 except as otherwise notified
Mercury, Total Recoverable		ng/L	Quarterly	Grab	Quarterly monitoring ends 12/31/05 except as otherwise notified. See 1.2.1.1 below.
Acute WET		TU_a	Annual	24-Hr Comp	An Acute WET Test shall be conducted within the first month after discharge begins plus one additional test in the last quarter of 2005 except as otherwise notified

1.2.1.1 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The permittee shall collect a mercury field blank for each mercury sampling event (day when samples for mercury are collected). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

1.2.1.2 Whole Effluent Toxicity (WET) Testing

Primary Control Water: Sheboygan River

WET Testing Frequency: Tests are required during the following quarters.

- **Acute:** Within 1 month after startup plus one additional test between October 1, 2005 to December 31, 2005 except as otherwise notified

Reporting: The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form" (page 40 of the "*State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, Edition 1*"), for each test. A copy of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator, WT/2, Bureau of Watershed Management, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion.

Determination of Positive Results: An acute toxicity test shall be considered positive if the Toxic Unit – Acute (TU_a) is >1.0 for either species. The TU_a shall be calculated as follows: $TU_a = 100/LC_{50}$. An $LC_{50} \geq 100$ equals a TU_a of 1.0.

Additional Testing Requirements: Within 90 days of a test which showed positive results, the permittee shall submit the results of at least 2 retests to the Biomonitoring Coordinator on "Whole Effluent Toxicity Test Report Forms". The retests shall be completed in accordance with the same requirements specified for the original test (see the Standard Requirements section herein).

2 Standard Requirements

NR 205, Wisconsin Administrative Code (Conditions for Industrial Dischargers): The conditions in ss. NR 205.07(1) and NR 205.07(3), Wis. Adm. Code, are included by reference in this permit. The permittee shall comply with all of these requirements. Some of these requirements are outlined in the Standard Requirements section of this permit. Requirements not specifically outlined in the Standard Requirement section of this permit can be found in ss. NR 205.07(1) and NR 205.07(3).

2.1 Reporting and Monitoring Requirements

2.1.1 Monitoring Results

Monitoring results obtained during the previous month shall be summarized and reported on a Department Wastewater Discharge Monitoring Report Form. This report form is to be returned to the Department no later than the date indicated on the form. The original and one copy of the Wastewater Discharge Monitoring Report Form shall be submitted to your DNR regional office. A copy of the Wastewater Discharge Monitoring Report Form shall be retained by the permittee.

If the permittee monitors any pollutant more frequently than required by this permit, the results of such monitoring shall be included on the Wastewater Discharge Monitoring Report Form.

The permittee shall comply with all limits for each parameter regardless of monitoring frequency. For example, monthly, weekly, and/or daily limits shall be met even with monthly monitoring. The permittee may monitor more frequently than required for any parameter.

Monitoring reports shall be signed by a principal executive officer, a ranking elected official, or other duly authorized representative.

2.1.2 Sampling and Testing Procedures

Sampling and laboratory testing procedures shall be performed in accordance with Chapters NR 218 and NR 219, Wis. Adm. Code and shall be performed by a laboratory certified or registered in accordance with the requirements of ch. NR 149, Wis. Adm. Code. Groundwater sample collection and analysis shall be performed in accordance with ch. NR 140, Wis. Adm. Code. The analytical methodologies used shall enable the laboratory to quantitate all substances for which monitoring is required at levels below the effluent limitation. If the required level cannot be met by any of the methods available in NR 219, Wis. Adm. Code, then the method with the lowest limit of detection shall be selected. Additional test procedures may be specified in this permit.

2.1.3 Recording of Results

The permittee shall maintain records which provide the following information for each effluent measurement or sample taken:

- the date, exact place, method and time of sampling or measurements;
- the individual who performed the sampling or measurements;
- the date the analysis was performed;
- the individual who performed the analysis;
- the analytical techniques or methods used; and
- the results of the analysis.

2.1.4 Reporting of Monitoring Results

The permittee shall use the following conventions when reporting effluent monitoring results:

- Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 0.1 mg/L, report the pollutant concentration as < 0.1 mg/L.

- Pollutant concentrations equal to or greater than the limit of detection, but less than the limit of quantitation, shall be reported and the limit of quantitation shall be specified.

- For the purposes of calculating an average or a mass discharge value, the permittee may substitute a 0 (zero) for any pollutant concentration that is less than the limit of detection. However, if the effluent limitation is less than the limit of detection, the department may substitute a value other than zero for results less than the limit of detection, after considering the number of monitoring results that are greater than the limit of detection and if warranted when applying appropriate statistical techniques.

2.1.5 Records Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit for a period of at least 3 years from the date of the sample, measurement, report or application, except for sludge management forms and records, which shall be kept for a period of at least 5 years.

2.1.6 Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or correct information to the Department.

2.2 System Operating Requirements

2.2.1 Noncompliance Notification

- The permittee shall report the following types of noncompliance by a telephone call to the Department's regional office within 24 hours after becoming aware of the noncompliance;
  - any noncompliance which may endanger health or the environment;
  - any violation of an effluent limitation resulting from an unanticipated bypass;
  - any violation of an effluent limitation resulting from an upset; and
  - any violation of a maximum discharge limitation for any of the pollutants listed by the Department in the permit.

- A written report describing the noncompliance shall also be submitted to the Department's regional office within 5 days after the permittee becomes aware of the noncompliance. On a case-by-case basis, the Department may waive the requirement for submittal of a written report within 5 days and instruct the permittee to submit the written report with the next regularly scheduled monitoring report. In either case, the written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; the steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance; and if the noncompliance has not been corrected, the length of time it is expected to continue.

- The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

2.2.2 Unscheduled Bypassing

Any unscheduled bypass or overflow of wastewater at the treatment works or from the collection system is prohibited and the Department may take enforcement action against a permittee for such occurrences under s. 283.89, Wis. Stats., unless:

- The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
- The permittee notified the Department as required in this Section.

Whenever there is an unscheduled bypass or overflow occurrence at the treatment works or from the collection system, the permittee shall notify the Department within 24 hours of initiation of the bypass or overflow occurrence by telephoning the wastewater staff in the regional office as soon as reasonably possible (FAX, email or voice mail, if staff are unavailable).

In addition, the permittee shall within 5 days of conclusion of the bypass or overflow occurrence report the following information to the Department in writing:

- Reason the bypass or overflow occurred, or explanation of other contributing circumstances that resulted in the overflow event. If the overflow or bypass is associated with wet weather, provide data on the amount and duration of the rainfall or snow melt for each separate event.
- Date the bypass or overflow occurred.
- Location where the bypass or overflow occurred.
- Duration of the bypass or overflow and estimated wastewater volume discharged.
- Steps taken or the proposed corrective action planned to prevent similar future occurrences.
- Any other information the permittee believes is relevant.

2.2.3 Scheduled Bypassing

Any construction or normal maintenance which results in a bypass of wastewater from a treatment system is prohibited unless authorized by the Department in writing. If the Department determines that there is significant public interest in the proposed action, the Department may schedule a public hearing or notice a proposal to approve the bypass. Each request shall specify the following minimum information:

- proposed date of bypass;
- estimated duration of the bypass;
- estimated volume of the bypass;
- alternatives to bypassing; and
- measures to mitigate environmental harm caused by the bypass.

2.2.4 Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit. The wastewater treatment facility shall be under the direct supervision of a state certified operator as required in s. NR 108.06(2), Wis. Adm. Code. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training as required in ch. NR 114, Wis. Adm. Code, and adequate laboratory and process controls,

including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

2.2.5 Spill Reporting

The permittee shall notify the Department in accordance with ch. NR 706 (formerly NR 158), Wis. Adm. Code, in the event that a spill or accidental release of any material or substance results in the discharge of pollutants to the waters of the state at a rate or concentration greater than the effluent limitations established in this permit, or the spill or accidental release of the material is unregulated in this permit, unless the spill or release of pollutants has been reported to the Department in accordance with s. NR 205.07 (1)(s), Wis. Adm. Code.

2.2.6 Planned Changes

In accordance with ss. 283.31(4)(b) and 283.59, Stats., the permittee shall report to the Department any facility expansion, production increase or process modifications which will result in new, different or increased discharges of pollutants. The report shall either be a new permit application, or if the new discharge will not violate the effluent limitations of this permit, a written notice of the new, different or increased discharge. The notice shall contain a description of the new activities, an estimate of the new, different or increased discharge of pollutants and a description of the effect of the new or increased discharge on existing waste treatment facilities. Following receipt of this report, the Department may modify this permit to specify and limit any pollutants not previously regulated in the permit.

2.2.7 Duty to Halt or Reduce Activity

Upon failure or impairment of treatment facility operation, the permittee shall, to the extent necessary to maintain compliance with its permit, curtail production or wastewater discharges or both until the treatment facility operations are restored or an alternative method of treatment is provided.

2.3 Surface Water Requirements

2.3.1 Permittee-Determined Limit of Quantitation Incorporated into this Permit

For pollutants with water quality-based effluent limits below the Limit of Quantification (LOQ) in this permit, the LOQ calculated by the permittee and reported on the Discharge Monitoring Reports (DMRs) is incorporated by reference into this permit. The LOQ shall be reported on the DMRs, shall be the lowest quantifiable level practicable, and shall be no greater than the minimum level (ML) specified in or approved under 40 CFR Part 136 for the pollutant at the time this permit was issued, unless this permit specifies a higher LOQ.

2.3.2 Appropriate Formulas for Effluent Calculations

The permittee shall use the following formulas for calculating effluent results to determine compliance with average limits and mass limits:

Weekly/Monthly average concentration = the sum of all daily results for that week/month, divided by the number of results during that time period.

Weekly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the week.

Monthly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the month.

2.3.3 Visible Foam or Floating Solids

There shall be no discharge of floating solids or visible foam in other than trace amounts.

3 Summary of Reports Due

FOR INFORMATIONAL PURPOSES ONLY

Description	Date	Page
Wastewater Discharge Monitoring Report Form	no later than the date indicated on the form	4

All submittals required by this permit shall be submitted to the Southeast Region - Plymouth, W5750 Woodchuck Lane, P.O. Box 408, Plymouth, WI 53073, except as follows. Report forms shall be submitted to the address printed on the report form. Any facility plans or plans and specifications for municipal, industrial pretreatment and non industrial wastewater systems shall be submitted to the Regional Plan Reviewer (as designated at www.dnr.state.wi.us/org/water/wm/consultant.htm). Any construction plans and specifications for industrial wastewater systems shall be submitted to the Bureau of Watershed Management, P.O. Box 7921, Madison, WI 53707-7921.

State of Wisconsin
Department of Natural Resources
dnr.wi.gov

Notice of Intent - Storm Water Discharges Associated With Land Disturbing Construction Activities General Permit

Form 3400-161 (R 8/04)

$140 – $350 Application Fee

This Notice of Intent form (NOI) is authorized by s. 283.37, Wis. Stats. Submittal of a completed NOI to the Department is mandatory for any landowner who intends to discharge storm water from a construction site to waters of the state and who must apply for permit coverage in accordance with 40 CFR Part 122, Chapter 283, Wis. Stats., and Chapter NR 216, Wis. Adm. Code. Failure to submit a completed NOI to the Department at least 14 working days prior to the date on which land disturbing construction activities commence may result in forfeitures up to $10,000 per day, pursuant to s. 283.91(2), Wis. Stats. Personally identifiable information on this NOI may be used for other water quality program purposes.

Submission of this NOI constitutes notice that the landowner identified in Section I intends to be authorized by a general WPDES permit issued for storm water discharges associated with land disturbing construction activities in the State of Wisconsin. Becoming a permittee obligates the landowner to comply with the terms and conditions of the general permit. **An erosion control plan and a storm water management plan meeting the requirements of Chapter NR 216, Wis. Adm. Code, must be completed before submitting this NOI.**

All necessary information must be provided on this NOI. Failure to complete this NOI correctly may result in its rejection by the Department. Please read all instructions before completing.

Section I: Landowner Information

Name	Contact Person
POLLUTION RISK SERVICES, LLC	DAVID R. FRIEDRICH
Mailing Address: 100 E. BUSINESS WAY. STE 210	Title: SR. PROJECT MANAGER
City: CINCINNATI / State: OH / ZIP Code: 45241	Telephone Number: 513.489.2793

Section II: Contractor Information (if currently known)

Name	Contact Person
PETRO ENVIRONMENTAL, LLC	DAVID WILLIAMS
Mailing Address: 7851 PALACE DRIVE	Title: PROJECT COORDINATOR
City: CINCINNATI / State: OH / ZIP Code: 45249	Telephone Number: 513.489.6789

Section III: Construction Site Information

Site Name: SHEBOYGAN RIVER & HARBOR SUPERFUND SITE

County:

Location Description: FORMER TECUMSEH PRODUCTS CO MANUF
415 CLEVELAND ST
SHEBOYGAN FALLS, WI 53085

- [x] City of SHEBOYGAN FALLS
- [ ] Township of, or
- [ ] Village of

Quarter-Quarter: [ ] NW [ ] NE [ ] SW [ ] SE Quarter: [ ] NW [ ] NE [ ] SW [ ] SE Section: ___ Township: ___ N Range: ___ [ ] E [ ] W

Is this site wholly contained on the above quarter quarter section? [ ] Yes [ ] No

*Use more space if needed to describe site location.

Total Area of Site	Total Estimated Disturbed Area	Percent of Site Impervious: (including rooftops and paved areas) Before Construction	After Construction
± 10.5 Acres	3 Acres	75 %	75 %

Type of Construction (check all that apply)

- [ ] Residential
- [ ] Commercial
- [ ] Industrial
- [ ] Reconstruction
- [ ] Utility
- [ ] Transportation (streets, roads, non-WisDOT highway projects, etc.)
- [x] Other (describe) REMEDIATION & CONSTRUCTION

Discharge: Does your construction site's storm water discharge to: (check all that apply)

- [x] Storm drain system - infiltrates to groundwater
- [ ] Storm drain system to surface water - enter system owner's name and receiving waters:
- [x] *Directly or indirectly to waters of the state - enter name of river, lake, wetland:*
- [x] Infiltration to groundwater occurs on site

Section IV: Site Location Map

Attach a legible photocopy from the appropriate USGS 7.5 minute series topographic map (not a plat map), with the perimeter of the construction site clearly identified.

Name of Quadrangle

SEE ATTACHED DESIGN DRAWING

ALSO, REFERENCE SHEBOYGAN RIVER & HARBOR SUPERFUND SITE PHASE I PROJECT DOCUMENTS FOR APPLICABLE PLANS, SPECIFICATIONS, AND OTHER RELATED PROJECT DOCUMENTS

Section V: Additional Information

Project Start Date (month/day/year)	Approximate Project End Date (month/day/year)
PHASE I SEPT 13, 2004	PHASE I DEC 1, 2004

Management Practices: Identify planned erosion and sediment control practices to reduce impacts **during** construction (check all that apply)

- [x] Phasing of Construction
- [x] Diversion of Clean Water
- [x] Phased Revegetation
- [x] Dewatering Sediment Control
- [x] Sediment Basin(s) and/or Trap(s)
- [ ] Stabilizing Channelized Flow
- [x] Silt Fencing
- [x] Vehicle Tracking Control
- [x] Erosion Control Matting and/or Mulch
- [ ] Other

Identify planned storm water management practices to reduce impacts **following** construction (check all that apply)

- [ ] Storm Water Pond(s)
- [x] Infiltration Practice(s)
- [ ] Infiltrate Rooftop Runoff
- [ ] Oil/Water Separator(s)
- [x] Clean Water Diversion(s)
- [x] Covered Storage Area(s)
- [x] Other

Plans: Has the construction site erosion control plan been completed for this site in conformance with s. NR 216.46, Wis. Adm. Code and the "Wisconsin Construction Site Best Management Practices Handbook"? [x] Yes [ ] No

Has the storm water management plan been completed for this site in conformance with s. NR 216.47, Wis. Adm. Code? [x] Yes [ ] No

Note: These plans must be completed before submitting this NOI.

Local Requirements: Are the construction site erosion control and storm water management plans in compliance with applicable local requirements? [x] Yes [ ] No If Yes, Local Agency Name:

Are you aware of any wetlands at the construction site or any wetlands that may be affected by the storm water discharge from the construction site? Please be aware that the Department shall, pursuant to s. NR 103.06(1)(b), Wis. Adm. Code, require that the storm water discharge comply with the water quality standards provisions in ch. NR 103. The presence of wetlands may affect certain aspects of the construction site project under the requirements of this code. [ ] Yes [x] No

Are you aware of any listed threatened or endangered species at the construction site? Please be aware that the Department shall, pursuant to s. 29.604(6r), Wis. Stats., *consult with the Bureau of Endangered Resources on whether approval of general permit coverage may affect a listed* threatened or endangered species. The presence of a listed threatened or endangered species may affect certain aspects of the construction site project under the requirements of this statute. [ ] Yes [x] No

Are you aware of any listed cultural or historical resources at the construction site? Please be aware that the Department shall, pursuant to s. 44.40, Wis. Stats., consult with the State of Wisconsin Historic Preservation Officer on whether approval of general permit coverage may have an adverse affect upon history property. The presence of historic property may affect certain aspects of the construction site project under the requirements of this statute. [ ] Yes [x] No

Section VI: Certification

I certify under penalty of law this document and attachments were prepared under my direction or supervision in accordance with a system designed to assure qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, I certify the provisions of the permit, including development and implementation of the construction site erosion control and storm water management plan, will be complied with. **Important: The person signing immediately below must be a representative of the landowner as defined in s. NR 216.43(3),Wis. Adm. Code. "Landowner" for purposes of this NOI is defined in s. NR 216.002(15), Wis. Adm. Code. Failure to have this NOI properly signed will result in its rejection and may delay the project.**

Landowner Printed Name	Title	Telephone Number
POLLUTION RISK SERVICES	SR. PROJECT MANAGER	513.489.2793
Landowner Signature		Date Signed
		04 OCT 2004

Complete below if NOI was prepared by a consultant or someone other than the landowner or an employee of the landowner. However, to be valid, the certification above must be signed by the landowner of the construction site.

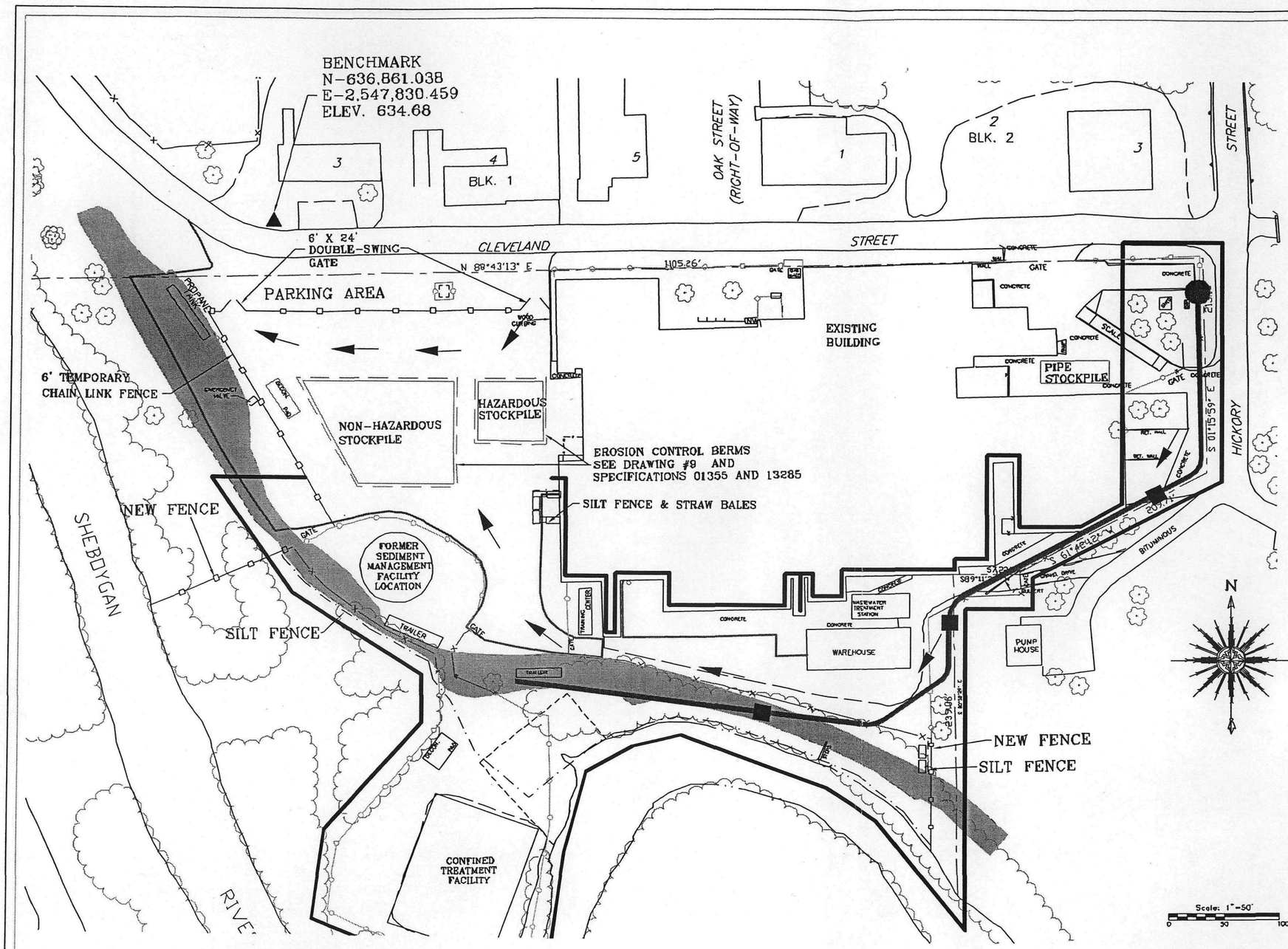
Preparer Printed Name			Firm
Mailing Address			Title
City	State	ZIP Code	Telephone Number
Signature of Preparer			Date Signed

Mail this completed Notice of Intent with application fee to the appropriate Department of Natural Resources office in the region where the construction site is located. The application fee is:

Acres of Land Disturbance	Application Fee
Less than 5	$ 140
5 or more and less than 25	$ 235
25 or greater	$ 350

See the instructions for regional office addresses.

LEAVE BLANK - DNR USE ONLY	
Date Signed	Construction Site ID#
Application complete? [ ] Yes [ ] No	
Historic/Endangered Checked? [ ] Yes [ ] No	



LEGEND

- EXISTING EDGE OF RIVER
- EXISTING TREE AND/OR BRUSH
- EXISTING ROAD
- EXISTING BUILDING
- EXISTING FENCE
- EXISTING ASPHALT/CONCRETE
- PROPOSED TEMPORARY SECURITY FENCE
- DEMO FENCE
- NEW SILT FENCE
- 57.22' S89°11'31" W — APPROXIMATE PROPERTY BOUNDARY AND BEARING WITH DISTANCE
- WORK AREA LIMITS
- FLOOD CONTROL BERM
- GROUNDWATER INTERCEPTION TRENCH
- SUMP
- MONITORING WELL / CLEANOUT
- STRAW BALES
- CONSTRUCTION TRAFFIC FLOW

NOTES:
1. SEE DRAWING #9 FOR EROSION AND SEDIMENT CONTROL REQUIREMENTS AND DETAILS.

2. CONTRACTOR MAY ADJUST LOCATION OF SECURITY FENCE AND SILT FENCE BASED ON FIELD CONDITIONS. TEMPORARY SECURITY FENCE SHALL BE 6'-0" HIGH CHAIN LINK FENCE. SECURITY GATE(S) FOR VEHICLES SHALL BE 6' HIGH CHAIN LINK SWING GATES, MIN. 24' OPENING WIDTH. CONTRACTOR TO REFERENCE ASTM F 1553 STANDARD GUIDE FOR SPECIFYING CHAIN LINK FENCE, AND ASTM F 567 STANDARD PRACTICE FOR INSTALLATION OF CHAIN LINK FENCE AS A GUIDE FOR MATERIALS AND INSTALLATION.

3. CONTRACTOR TO COORDINATE WITH CITY OF SHEBOYGAN FALLS FOR ACCESS TO PARK PROPERTY.

4. CONTRACTOR TO SEED & MULCH ALL DISTURBED AREAS AFTER COMPLETION OF WORK.

5. LIMITS OF EXCAVATION MAY VARY BASED ON RIVER WATER LEVEL. CONTRACTOR TO SURVEY LIMITS OF EXCAVATION. ADDITIONAL PCB-IMPACTED SOILS WILL BE REMOVED WHEN WATER LEVELS DECREASE OR DURING PHASE II CONSTRUCTION.

6. STOCKPILES ARE PLACED SO THAT PCB-IMPACTED STOCKPILES ARE DOWNGRADE FROM CLEAN STOCKPILES. EROSION CONTROL BERMS SHALL BE PLACED AROUND PCB-IMPACTED STOCKPILES ACCORDING TO SPECIFICATIONS 01355 AND 13285. SEE DRAWING #9 FOR EROSION CONTROL BERM.

REVISION	DESCRIPTION	DRAWN BY	CHECKED BY	DATE
IFC	ISSUED FOR CONSTRUCTION	PRK	DF	MAY 2004

CONSTRUCTION

ISSUE

ENGINEER SEAL

PRS Pollution Risk Services
100 E-Business Way, Suite 210
Cincinnati, Ohio 45241
Phone: 513-489-2793
Fax: 513-489-2794

PREPARED FOR:

SHEBOYGAN RIVER PROJECT

SHEBOYGAN FALLS, WISCONSIN

FACILITIES LAYOUT

SCALE: AS SHOWN

PROJECT NUMBER: 02-010

SHEET NO: 8

Contingency Plan

Upper River – Phases I and II

Sheboygan River and Harbor Superfund Site

Sheboygan Falls, Wisconsin

May 2004

ISSUED FOR CONSTRUCTION

Prepared By

Pollution Risk Services, LLC

PRS Pollution Risk Services

Contents

Contents (continued)

Appendix

Tables

1. Introduction

1.1 Purpose/Scope

The purpose of this Contingency Plan is to protect the potentially affected local community in the unlikely event of a waste spill, accident or emergency that could occur in conjunction with sampling or remediation activities. The Contingency Plan describes the actions project personnel must take to respond to emergencies and unplanned releases of contaminated or hazardous constituents.

The scope of the plan includes the following:

- General project information
- Entity responsible for responding in the event of an emergency incident
- Plan for meeting with local, state and federal agencies
- First aid and medical information
- Spill control and countermeasures plan
- Emergency response organization

An air monitoring plan is not included, since the risk of impacts to workers or the general public via the inhalation/air transport pathway is negligible. The inhalation/air transport pathway is judged negligible since remedial activities will be handled in a wet or saturated state. Therefore, dusting is not a concern. In addition, volatile compounds are not predominant in the contaminants of concern.

1.2 General Project Information

Project Title/Location
Sheboygan River and Harbor Superfund Site
Sheboygan Falls, Wisconsin

Project Coordinator/Settling Defendant:
Pollution Risk Services ("PRS")
100 E-Business Way, Suite 210
Cincinnati, OH 45241

Supervising Contractor
URS Corporation ("URS")
Milwaukee County Research Park
10200 Innovation Drive
Suite 500
Milwaukee, WI 53226

Remediation Contractor
(To Be Determined)

1.3 Project Description

This Contingency Plan (CP) was prepared for the Sheboygan River and Harbor Superfund Project Upper River Phase I & II. The Sheboygan River Site is located near the western shore of Lake Michigan approximately 55 miles north of Milwaukee, Wisconsin. The Sheboygan River Site includes the former Tecumseh Products Company Plant (Plant Site) in Sheboygan Falls, Wisconsin. The Upper River section extends from the Sheboygan Falls Dam downstream approximately 4 miles to the Waelderhaus Dam in Kohler, Wisconsin.

1.4 Scope of Work

Phase I will address the Plant Site groundwater, riverbank soils, source materials with elevated polychlorinated biphenyl (PCB) concentrations, and any other significant source areas or preferential pathways discovered during previous investigations or remedial construction on the Plant Site. Phase I will include installation of a groundwater monitoring/interceptor trench, removal of selected impacted soils, verification sampling following soil removal, and installation of a monitoring well network.

Phase II will address the remainder of the Upper River remedial action (herein after called the Soft Sediments and Floodplains). Phase II will include re-characterization of Upper River Soft Sediments and Floodplains, removal of impacted sediments and floodplain soils, and confirmation sampling following sediment removal.

2.0 Proposed Remedial Activities

Phases I and II of the project involves PCB removal and associated activities in areas where contact with potentially hazardous materials may occur. Major work items include the following activities:

- Excavation, transport and disposal of PCB impacted soils and sediments;
- Soil, sediment and groundwater sampling;
- Installation and/or management of dewatering and water treatment systems;
- Construction of temporary access roads and embankments;
- Installation and maintenance of sedimentation and erosion controls such as turbidity curtains, silt fence etc;
- Construction of a groundwater monitoring/interceptor trench;
- Clearing and grubbing
- Backfill and restoration of disturbed areas; and
- Site clean up and demobilization.

3.0 General Preventive Measures

Throughout the remediation process, efforts will be made to avoid releases of contaminated materials or treatment chemicals. However, there is a potential for releases to occur during the remediation and construction activities. In the unlikely event that a release occurs, immediate action to contain and clean up the release will occur, including coordinating with outside agencies.

This Contingency Plan is fashioned to aide site personnel in responding quickly and effectively to the problems presented by accidental releases and emergency situations. Its primary goal is to limit the environmental damage from a release and to protect the health and safety of on-site personnel and the general public who may be affected. This Contingency Plan provides a summary of the various remediation processes from which a release could occur, the chain of command should a release occur, preventive measures to avoid/contain a release, and corrective actions for isolating, containing and cleaning up a release. The plan, as well as the Site Specific Health & Safety Plan (HASP), contains a listing of the local, state and federal phone number contacts in the event of an accidental release or emergency situation. This phone listing will be posted in all construction offices.

3.1 Pre-Emergency Planning

Prior to engaging in investigations and/or construction/remediation activities at this site, the selected remediation contractor will be responsible to meet the minimum requirements set forth herein and the applicable regulatory requirements.

The following situations would warrant implementation of the plan actions:

- Spill or release of hazardous materials
- Natural disaster
- Medical emergency

The following measures will be taken by the remediation contractor to assure the availability of adequate equipment and manpower resources:

- Sufficient equipment and materials will be kept on-site and dedicated for emergencies only. The inventory will be replenished after each use.

- On-site emergency responders will be current with regard to training and medical surveillance programs. Copies of all applicable certificates will be kept on file for on-site personnel required to respond.

- It will be the responsibility of the remediation contractor's Emergency Coordinator (EC) to brief the on-site response team on anticipated hazards at the site. The EC will also be responsible for anticipating and requesting equipment that would be needed for response activities.

- Emergency response activities pertaining to releases of hazardous substances in excess of the reportable quantity (RQ) will be communicated to the Wisconsin Department of Natural Resources Spill Hotline (See Table 1). Hazardous substances and reportable quantities are defined in DNR Publication # RR-559; NR 706; and 40 CFR 117 & 302. Applicable sections are contained in Appendix A.

Communications will be established prior to commencement of any activities at the site. This will allow responders on-site to have access to pertinent information, allowing them to conduct their activities in a safe and healthy manner.

Primary communication will be accomplished in the event of an emergency utilizing appropriate emergency numbers listed in Table 1. The remediation contractor will be required to provide a listing of their on-site responders, including the Emergency Coordinator, primary responder(s), and alternates.

3.1.1 Emergency Response Equipment

The remediation contractor will be responsible for implementing the Contingency Plan and will be required to have emergency response equipment on-site. The equipment will be staged at a location easily accessible from the office trailer and at target locations on the site, as needed, to provide for safety and first aid during emergency responses. The following equipment is typically provided for this type of remediation project.

- ABC-type fire extinguishers;
- First-aid kit, industrial size;
- Eyewash/Safety shower;
- Emergency Signal horn;
- Stretcher/backboard; and
- Protective clothing, gloves, boots, eye and ear protection compatible with the project requirements.

3.1.2 Emergency Services Agreements

3.1.2.1 Off-Site Emergency Contingency Plan

Prior to commencing work involving the handling or excavation of contaminated materials, the remediation contractor will be responsible to develop an off-site emergency contingency plan. This plan is intended to provide immediate response to a serious off-site incident, explosion, fire, or a spill of a quantity of toxic or hazardous material from the site onto adjacent public areas.

A coordination meeting will be held with appropriate authorities that may include the city, fire, hospital, state and city police, State Department of Transportation, Health Department and emergency officials. The meeting will identify the off-site response coordinator through whom all information and coordination will occur in the event of an incident. Plans will be developed, or existing plans incorporated as an appendix into this Contingency Plan, encompassing:

- Evacuation of adjacent areas;
- Firefighting procedures;
- Transport of injured personnel to medical facilities;
- Priority evacuation routes; and
- Coordination and/or modification of highway operation.

Techniques and recommended procedure for immediate first aid emergency response will be developed with local medical facilities.

This off-site emergency contingency plan will be updated to contain a description of the agreements made with local police departments, fire departments, rescue squads, hazardous waste cleanup contractor(s) and Wisconsin state and local emergency response teams. The selected remediation contractor will contract a qualified hazardous waste cleanup contractor(s) who will be on call for the duration of the site activities. The remediation contractor will work with local police, fire and rescue units to make arrangements for the needed emergency response services. Agreements mentioned will be negotiated during or prior to the contracting of the remediation services. The agreement(s), once finalized, will be added as attachments to this Contingency Plan.

3.1.2.2 On-Site Emergency Contingency Plan

In the event of injury to on-site personnel, the following protocol will be followed. It should be noted that the below protocol is meant to be a guideline. Actual sequence of events and/or notifications will be event-specific and based upon severity of the accident/injury.

- Notify the project HSO;
- Notify the appropriate USEPA agency/personnel;
- Contact the designated hospital and describe the injury;
- Administer appropriate first aid;
- Transport personnel to the medical facility along a pre-defined route; and
- In the event of a serious injury, an ambulance will be summoned.

3.1.3 Project Meetings

The remediation contractor's Site Superintendent or designee will hold site meetings on a schedule to be determined after the remediation contract is awarded during the course of the project. The purpose of these meetings is to enhance communication between the various organizations involved, including informing the local, state and federal officials regarding the status of the remediation and discuss ongoing and upcoming investigation and/or remediation activities. Representatives of the local community (i.e., citizens committee) will be invited to participate in these meetings. As part of the agenda of each meeting, health and safety issues related to ongoing and upcoming work will be discussed. This Contingency Plan may be

modified as the results of changes to the scope of work or procedures used to accomplish the remediation.

3.2 Emergency Recognition and Prevention

Because unrecognized hazards may result in emergency incidents, it will be the responsibility of the remediation contractor's Site Superintendent, through daily site inspections and employee feedback (Safety Observation Program, daily safety meetings, and activity hazard analyses), to recognize and identify hazards that are found at the Site. These may include but are not limited to:

Chemical Hazards	-	Materials at the Site
	-	Materials brought to the Site
Physical Hazards	-	Fire/explosion
	-	Slip/trip/fall
	-	Electrocution

Once a potential hazard has been recognized, the Site Superintendent will take immediate action to prevent the hazard from becoming an emergency. This may be accomplished by the following:

- Removal of the hazard;
- Daily safety meetings;
- Task-specific training prior to commencement of activity;
- Lock-out/tag-out;
- Personal protective equipment (PPE) selection/use;
- Following standard operating procedures for potentially hazardous environments; and
- Practice drills for fire, medical emergency, and hazardous substances spills.

3.3 Housekeeping

In order to reduce the possibility of accidental spills and safety hazards, good housekeeping practices will be strictly followed and enforced. This may include prompt removal of small spills, regular maintenance of walking areas, regular removal of refuse, and/or staging of similar materials together.

3.4 Security

PRS or designee will be responsible for site security for the project duration. A sign-in log will be located and maintained at the Site office. All project personnel and visitors will be required to sign in on a daily basis. Unauthorized personnel will not be permitted to enter the site.

3.5 Training

All site personnel involved in remediation and/or construction activities (remediation contractor and the supervising contractor) will be trained in compliance with 40 CFR 1910.120. Operators of equipment that is present and used for site activities will be also require proper training.

3.6 Spill Prevention, Control and Countermeasures (SPCC) Plan

A Spill Prevention Control and Countermeasures (SPCC) Plan will be required to be developed and submitted by the remediation contractor as part of the contract requirements for this project. The submittal will be required to contain the following minimum information:

1. Spill Prevention Control
   - Spill prevention on-site
   - Spill prevention during transport

2. Emergency Response and Countermeasures
   - Personnel roles, lines of authority and communication
   - Responsibilities
     - emergency coordinator duties
     - additional response contractors and equipment
   - Medical emergency contingency measures

3.7 Directions to Hospital

Written directions to the hospital and a map will be posted in all on-site office trailers. Directions to the hospital are also located in the Site Specific Health & Safety (H&S) Plan.

3.8 First Aid and Medical Information

General first aid information is provided in Site Specific H&S Plan. Note: the remediation contractor will be responsible for health and safety for it's employees during the remedial activities and will be responsible to provide personnel trained in first aid and CPR.

3.9 Fire Contingency Measures

Because flammable/combustible materials are present at this site, fire is an ever-present hazard. The supervising contractor, remediation contractor, and subcontractors are not trained professional firefighters. Therefore, if there is any doubt that a fire cannot be quickly contained and extinguished, notify the EC by radio and vacate the area. The EC will immediately notify the local Fire Department (911).

The following procedures will be implemented in the event of a fire:

- Anyone who sees a fire will notify their supervisor who will then contact the EC by radio. The EC will activate an emergency siren and contact the local Fire Department (911).

- Work crews will be comprised of pairs of workers (buddy system) who join each other immediately after hearing the fire alarm and remain together throughout the emergency. Workers will assemble at a predetermined rally point for a head count.

- If a small fire has been extinguished by a worker, the EC will be notified.

3.10 Hazardous Weather Contingency Measures

Operations will not be started or continued when the following hazardous weather conditions are present:

- Lightning
- Heavy Rains/Snow
- High Winds
- Tornado Warnings
- High Water/Flood Conditions in the Sheboygan River.

The following procedures will be implemented in the event of hazardous weather conditions:

- Excavation/soil stockpiles will be covered with plastic liner and secured.

- All equipment will be shut down and secured to prevent damage.

- Personnel will be moved to safe refuge, initially crew trailers. The EC will determine when it is necessary to evacuate personnel to off-site locations and will coordinate efforts with fire, police and other agencies.

3.11 Contingency Plan for Highway Hazardous Waste Transportation

3.11.1 Emergency Action

In the event of an on-the-road spill or other emergency, the driver will follow these procedures:

- Notify the remediation contractor Site Superintendent via two-way radio or cell phone.

- The Site Superintendent will contact the HSO, WDNR and the spill response contractor to initiate the cleanup procedures.

- Remain with the vehicle and warn all pedestrians and motorists to stay away from the spill area.

- Call the local police if it is necessary to barricade the roadway.

The Site Superintendent will gather the following information from the driver and relay it to the HSO, WDNR and the spill response contractor:

- Name of the person reporting the incident.
- Name, address, and USEPA number of the transporter.
- Phone number (or radio channel) where person reporting can be reached.
- Date, time, and location of the incident.
- The extent of injuries, if any.
- Modes of transportation and type of transport vehicles involved.
- Classification, name, quality, and estimated quantity of any hazardous material wastes involved, if such information is available.
- Type of incident and nature of the hazardous material/waste involvement and whether a continued danger exists at the scene.
- For each waste product involved provide:
    - Name and USEPA number of the generator.
    - Product shipping, hazardous class, and UN or NA number.
    - Estimated quality of material spilled.
    - If possible, the extent of contamination to land, water, or air.
- Specific actions to be taken at the scene of the spill:

1. Containment. The critical problem is to prevent the escape of any spilled solid into the ground or into a storm or sanitary sewer. Containment of solids will be dependent on wind and weather conditions. Using the tarpaulin to cover the spilled wastes and sand bags to contain the spilled wastes are effective means for the short term. Adjacent storm sewer/catch basins should be covered and/or protected with temporary berms or dams to prevent spilled wastes from entering into the storm water system.

2. Cleanup. With containment effected and the spillage source controlled, cleanup is the next step. If the spill is contained on an impervious paved surface, solid material should be collected and any contaminated liquid absorbed into a compatible material (e.g., sand, diatomaceous earth). Any of a number of commercial absorbent inert materials may be used, but make sure they are compatible with the waste and will not cause a reaction.

If any spilled waste has reached the ground, the contaminated spill will be removed and disposed at the appropriate disposal site. The extent of contamination will be determined by sampling the areas. The samples will be analyzed by a qualified laboratory. Sampling techniques, chain-of-custody requirements, and analytical methods should follow approved procedures. Any solids exhibiting contamination above the background level will be removed and disposed at an approved disposal site.

3.11.2 Emergency Equipment

Each truck will carry the emergency equipment which is required for the driver to perform the actions described in Section 3.11.1 if a spill occurs. A list of the emergency equipment will be supplied by the selected remediation contractor.

All equipment will be tested and maintained as necessary to allow its proper operation in the event of an emergency. After an emergency, all equipment will be decontaminated, cleaned, and fit for its intended use before normal operation resume.

Appendix A

Wisconsin Spill Reporting Requirements

APPENDIX A – WISCONSIN SPILL REPORTING REQUIREMENTS

Wisconsin Spill Reporting Exemptions

Statutory Exemptions

The following exemptions to spill reporting are included in s. 292.11, Wis. Stats.:

- discharges within the limits authorized by a valid permit or program approved under Chs. 281, 285, or 289 - 299 (e.g. WPDES discharge permit);
- law enforcement agencies/fire departments using hazardous substances in protecting human health, safety, or welfare;
- applications of a registered pesticide according to label instructions, or application of a fertilizer at or below normal and beneficial agronomic rates

De Minimis Exemptions:

Besides the statutory exemptions identified above, Ch. NR 706, Wis. Adm. Code establishes exemptions for small quantity spills of agricultural and petroleum related compounds, as well as substances that have a federal reportable quantity established. These quantities are termed "de minimis" in that below these levels, under the following conditions, state notification of a discharge is not required. While reporting requirements may be exempted, cleanup requirements remain.

De Minimis Exemptions do not apply if the spill:

- ✔ has not evaporated or been cleaned up in accordance with NR 700 - 726;
- ✔ adversely impacts or threatens to adversely impact the air, lands, waters of the state as a single discharge, or when accumulated with past discharges;
- ✔ causes or threatens to cause chronic/acute human health impacts; or
- ✔ presents or threatens to present a fire or explosion or other safety hazard (including evacuations).

If you have a discharge that meets one of the following de-minimis exemptions, but has not been cleaned up, adversely impacts or threatens to adversely impact the environment, causes or threatens to cause human health impacts, or presents or threatens to present a fire or explosion hazard (including all evacuations), you still need to report your spill!

De Minimis Exemptions are as follows:

Discharges of Petroleum compounds if you spill:

- gasoline or another petroleum product is completely contained on an impervious surface.
- less than one gallon of gasoline on a pervious surface or runs off an impervious surface.
- less than five gallons of other petroleum products on a pervious surface or runs off an impervious surface.

Discharges of Agrichemical compounds if:

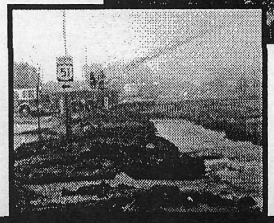
- the amount is less than 250 pounds of a dry fertilizer.
- the amount is less than 25 gallons of a liquid fertilizer.
- the amount discharged when diluted as indicated on the pesticide label would cover less than one acre of land if applied according to label instructions for pesticides registered for use in Wisconsin.

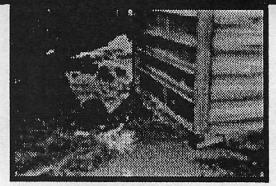
Federal reportable quantities:

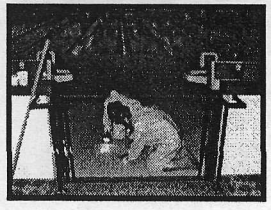
- if the amount discharged is less than the federal reportable quantity.

For More Information

To order this and any other publications, or to find out more information about the Remediation and Redevelopment Program, please call our Information Line at 800-367-6076 (long distance in-state) or 608-264-6020 (local or out-of-state); or check out our web site at http://www.dnr.state.wi.us/org/aw/rr.







WISCONSIN DEPT. OF NATURAL RESOURCES

PUB-RR-558 MARCH, 2003

Hazardous Substance Spills Reporting Requirements

Wisconsin Department of Natural Resources • PO Box 7921 • Madison, WO 53707

Chapter 292.11 – Wisconsin Spill Law

The spill law, Chapter 292.11, Wis. Stats., requires that a person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance shall notify the department immediately of any discharge not exempted by the statute. The Department has a 24-hour toll free number for reporting spills: 1-800-943-0003.

In order to determine whether you have a hazardous substance spill that requires immediate notification, you must ask yourself the following three questions: 1) Is the substance spilled a hazardous substance; 2) Has it been released to the environment; and 3) Are there statutory or rule exemptions that apply to this situation. The following text should help you answer those questions, and provides you with insights into unusual spills that did require notification.

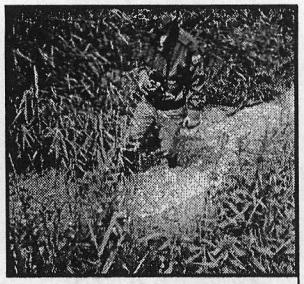
Hazardous Substance Definition

Chapter 292.01(5), Wis. Stats., defines a hazardous substance as "any substance or combination of substances including any waste of a solid, semisolid, liquid or gaseous form which may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illnesses or which may pose a substantial present or potential hazard to human health or the environment because of its quantity, concentration or physical, chemical or infectious characteristics. This term includes, but is not limited to, substances which are toxic, corrosive, flammable, irritants, strong sensitizers or explosives as determined by the department."

This definition suggests that a hazardous substance can be anything, depending on the nature of the release. The question you really need to ask yourself is how much was released and into what environment. The rule of thumb used by many is if you have to think about whether it needs to be reported, it probably does. Remember, reporting spills never gets you into trouble, only failure to report does. Whether the spilled hazardous substance is heating oil or gasoline, or something unusual like corn, butter and/or manure that flows towards a stream, pickle juice spilled on the ground, or even mercury spilled in a classroom, DNR staff will tell you if your specific incident does not meet the criteria of a reportable spill at the time that you report it. To help clarify what spills are reportable, statutory exemptions as well as "de-minimis" exemptions have been established and are explained on the back page of this brochure.

The 24-hour Toll Free Hotline for Reporting Spills is:
1-800-943-0003

Knee High by the Fourth of July!



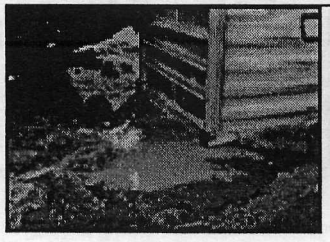
We don't think of corn as hazardous – fields of corn dominate the landscape in the summer. Sweet corn stands at the farmers' market and ground corn for cattle or hogs are the images that come to mind. However, a stream filled with dried shell corn from a derailed train is quite a different picture. As organic materials decompose in water, they increase the biological oxygen demand, or BOD, of the water. Their degradation reduces the amount of oxygen available to the organisms living in that water body, including fish. If the BOD gets too high, the water will not contain sufficient oxygen for organisms to survive – in this case, the corn created an anaerobic environment. The substance can be corn, milk, manure, or any other organic material. The quantity and size of the spill, the biological oxygen demand of the spilled material, and the size of the water body will determine whether the environment is at risk. The company associated with this spill did not report it to the department, and was subject to enforcement action.

If there's corn, there must be butter...

In May of 1991, a fire broke out in a refrigerated warehouse that stored 50 million pounds of food products, including butter, lard and cheese. This warehouse was in close proximity to a creek that flowed into Lake Monona, a large urban lake. The heat from the fire caused the food products to melt, which in turn, contributed to the intensity and duration of the fire. It took 8 days for the fire department to put out the fire. The warehouse buildings were destroyed, and the water from the fire suppression activities mixed with the melted food products and flowed toward the creek and nearby storm sewers – all leading to the lake. The fire department realized quickly that this was a reportable spill, and a potential environmental disaster and reported the release to the DNR. The department acted to prevent the mixture from reaching the waterbodies, and the total environmental cleanup costs to the warehouse company were over $1 million.

What's that smell?

Driving through the beautiful Wisconsin countryside with the windows open – fresh air filling your car – until you pass an area that has recently been spread with animal manure. Yes, you explain to your children, waste from animals can be used to fertilize the land, making it a recyclable product benefiting the environment. Until, however, that manure is applied too heavily or washed into a stream where the organic material removes the oxygen from the stream resulting in a major fish kill stretching for miles downstream. Again, manure is not often thought of as a hazardous substance – it's a natural by-product of animal husbandry – but it needs to be properly managed or hazardous conditions may result. For more information on agricultural spills, see DNR publication # RR-687 "Agricultural Spills and How to Handle Them".



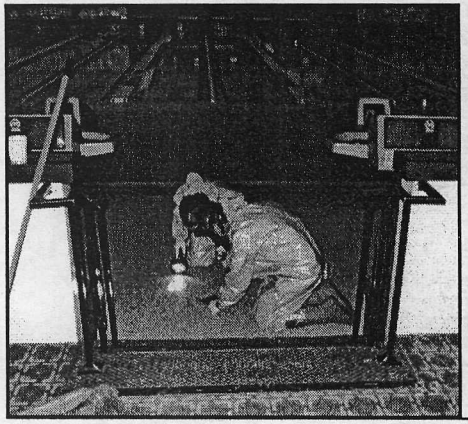
In a pickle!

This truck driver was in quite a pickle after his truck carrying pickle juice was in a major collision. Pickle juice leaked from the truck bed, along with diesel fuel from the truck itself. This caused soil contamination due to the hazardous characteristics of the diesel fuel along with the high pH of the pickle juice. The trucking company hired a clean up company to excavate the contaminated soil and properly dispose of it. If left in place, this contamination could have migrated to the groundwater, causing impacts to nearby private drinking water wells.

"F" in Science Class...

Recently, a high school science teacher was using elemental mercury in his science class while talking about elements and compounds. Despite warnings about the hazards of mercury, it was simply too tempting for one student, who stole the small bottle containing approximately 4 ounces of mercury after class.

The student and friends began playing with the mercury, spreading it to various classrooms, stairwells, steps and sidewalks. Later in the morning, the student went bowling at a nearby bowling alley. On the bus to the bowling alley, the container of mercury was passed around, spilling on more students and the bus. At the bowling alley, students continued to play with the mercury, putting it in the finger holes of bowling balls and rolling them down the lanes. During lunch, the student took the mercury to a friend's house, transferring it to zip lock bags to be sold for $1 per bag. Before classes ended that day, the student was called out of her classroom, the mercury was confiscated and police, fire departments, and the DNR were notified.



After sampling, the high school, several students, one home, a school bus, the bowling alley, and a sidewalk tested positive for mercury contamination. A contractor was called into assist with the mercury cleanup. In order to gain control of the scene and begin to control the spread of the mercury students were locked in the building and put into separate rooms, depending on whether they were contaminated or not. Students that were exposed to the mercury were required to go to the school locker rooms, remove their clothes, shower, and dress in new clothes. Several students were taken to a local hospital for additional mercury testing. Total costs for the entire cleanup were more than $250,000.

When in doubt, call the number!

If you're not sure whether you have a spill that needs to be reported, call the 24-hour toll free hotline, 1-800-943-0003, and you will be provided with guidance on reporting. In many situations, spill report forms are not completed if the incident is not considered a hazardous substance spill to the environment. You will need to provide information such as

- ✔ your name, address, location of the discharge;
- ✔ physical state, quantity, chemical characteristics of the discharged substance;
- ✔ cause of the discharge;
- ✔ destination of the discharged substance;
- ✔ actions taken to stop the release/minimize the impact to the environment
- ✔ actual or potential impacts to human health or the environment

DNR Regional Spill Coordinators:

Northeast: Roxanne Chronert (920) 492-5592
Northern: Norm Dunbar (715) 365-8963
Southeast: Scott Ferguson (414) 263-8685
South Central: Ted Amman (608) 275-3332
West Central: John Grump (715) 839-3775

See the back page for further explanation of reporting exemptions.

Remember, reporting a spill is always in your best interest – it can minimize potential legal consequences, protect you from future false accusations, and establish a record on your follow-up activities cleaning up the spill. Not reporting spills is where problems start. If you have general questions about spill reporting, call your regional DNR office and ask for the spill coordinator. They can assist you in your spill-related questions.

ARE THESE HAZARDOUS SPILLS?

Wisconsin Spill Reporting Requirements - *Condensed Version*

PUB-RR-560 August 2002

ALL discharges of hazardous substances that adversely impact, or threaten to adversely impact public health, welfare or the environment must be IMMEDIATELY reported to the DNR.

De Minimis Exemptions in Chapter NR 706, Wis. Adm. Code (effective 3/1/97):

***Only* apply when the discharged substance:**

- √ **has evaporated or been cleaned up in accordance** with NR 700 - 726;
- √ **does not adversely impact or threaten to adversely impact** the air, lands, waters of the state as a single discharge, or when accumulated with past discharges
- √ **does not cause or threaten to cause** chronic/acute human health impacts
- √ **does not present or threaten to present** a fire or explosion or other safety hazard

1. Petroleum compounds:

- gasoline or another petroleum product completely contained on an impervious surface.
- < 1 gallon of gasoline onto a pervious surface or runs off an impervious surface.
- < 5 gallons of other petroleum products onto a pervious surface or runs off an impervious surface.

2. Agrichemical compounds:

- < 250 pounds dry fertilizer
- < 25 gallons of a liquid fertilizer
- pesticides that would cover < 1 acre of land if applied according to label instructions.

3. Federal reportable quantities:

- < the federal reportable quantity for a specific substance

Statutory Exemptions - no reporting is required for:

- discharges within the limits authorized by a valid permit or program (Chs. 281, 285, or 289 - 299, Wis Stats)
- law enforcement /fire departments using hazardous substances to protect human health, safety, welfare;
- proper applications of a registered pesticide or a fertilizer

Call 24-hour Hotline 1-800-943-0003 to report a spill of a hazardous substance

Notes:

This document may contain some information about certain state statutes and rules but does not necessarily include all of the details found in the statutes/rules. Readers should consult the actual language of the statutes/rules to answer specific questions.

For More Information

To order this and any other publications, or to find out more information about the Remediation and Redevelopment Program, please call our Information Line at 800-367-6076 (long distance in-state) or 608-264-6020 (local or out-of-state); or check out our web site at http://www.dnr.state.wi.us/org/aw/rr.

Publication # RR-559 **January, 2002**

DNR Staff Provide Spill Response and Support

No one plans a spill; they are typically caused by accidents of some sort, but when they do occur, there are statutory requirements people must comply with. The Wisconsin Statutes mandate that spills of hazardous substances be immediately reported and cleaned up to protect Wisconsin's citizens and resources. If and when a spill occurs, the DNR has staff in each of the Regional offices to help in a variety of ways.

Activating a DNR Response

When calls are made to the hotline during the day, the information comes directly to the DNR office in Madison, and is forwarded to the nearest available warden for follow-up. During the evening hours, the phone calls are directed to the State Patrol, who will forward the information to a DNR Duty Officer. That Duty Officer will make sure the local warden is alerted to the situation. Depending on the nature of the spill, local officials may also be activated to assist at the scene. These officials can be fire department staff, hazmat specialists, or local police or sheriff department staff.

*The DNR encourages the public to report hazardous substance spills using the 24-**hour toll-free hotline:** **1-800-943-0003***

DNR Field Response

DNR Wardens

The first responders to a hazardous substance spill for the DNR typically are the DNR wardens. Wardens are local - each county has at least one warden working within the county. They have training in response activities and can assist local law enforcement officials, help set up protective barriers for small spills, or assist the responsible party in managing the spill. Wardens also know the local resources, including other response agencies like the fire departments, as well as the natural resources for which they are stewards.

When a warden gets a call about a spill, their follow up may include additional phone calls to get more information about the nature of the spill, going to the site, requesting other DNR assistance (i.e. fish managers, water resources staff, spill coordinators), or when an emergency situation occurs and the responsible party is not available or willing to take action, calling in the DNR Zone Contractor to respond to the spill.

The DNR has contracted with emergency response companies to provide statewide emergency response services to discharges of hazadous substances when responsible parties are unable or unwilling to take necessary actions to respond to an emergency situation. These companies can provide a response within 2 hours of notification, and specialize in emergency response, spill containment and removal. They are able to assess a situation, take actions to prevent spilled materials from harming the public or the environment, sample substances to determine how to manage them, containerize the spilled materials in suitable containers, and remove those substances from the spill site to a secure facility until analyses are completed to determine their final placement. At the conclusion of the response, the department seeks cost recovery for the response costs from the responsible party.

Regional Spill Coordinators

Spill Coordinators are available in each of the Regional DNR offices who specialize in technical spill response issues. These staff are available before, during, and after spills occur.

Before spills occur...

The spill coordinators are part of local planning and response networks. They work with local emergency planning agencies, talk to the local fire departments about spill response issues, and work with the wardens to ensure a consistent DNR approach to spill response. In addition, the spill coordinators work with local industries who may handle hazardous substances as part of their business to provide them with technical support for spill prevention as well as spill response.

During a Spill...

When a spill occurs, the wardens are typically the first responders. However, the spill coordinators can provide assistance in a variety of ways. Spill coordinators have developed packets of information that are provided to persons who are responsible for the spill. Included in these packets are information on DNR regulations, additional DNR

contact persons, as well as listings of local contractors and waste management organizations who can assist the responsible party in management of the residual spilled material. The spill coordinator is often consulted by the responsible party for technical advice on spill containment and cleanup.

After a Spill...

The spill coordinators are part of the Remediation and Redevelopment technical staff, and are familiar with DNR regulations relating to site investigation and cleanup. Although smaller cleanups do not receive direct DNR oversight, the coordinators can answer questions and guide responsible parties through the process.

State Spill Response Team

The DNR manages the spills program through the State Spill Response Team. This team is comprised of a State Spill Coordinator, a State Emergency Management Coordinator, a federal Removal Coordinator, the 5 Regional Spill Coordinators, and legal counsel. Through the interactions of these staff persons, we identify and resolve issues to make the spill response program as effective as possible, in an ever changing response mode.

Northeast Regional Spill Coordinator: Roxanne Chronert (920) 492-5592
Northern Regional Spill Coordinator: Norm Dunbar (715) 365-8963
Southeast Regional Spill Coordinator: Scott Ferguson (414) 263-8685
South Central Regional Spill Coordinator: Ted Amman (608) 275-3332
West Central Regional Spill Coordinator: John Grump (715) 839-3775
State Spill Coordinator: Robin Schmidt (608) 267-7569
State Emergency Response Coordinator: David Woodbury (608) 266-2598
Federal Removal Coordinator: Amy Walden (608) 267-5063
Legal Counsel: Joe Renville (608) 266-9454

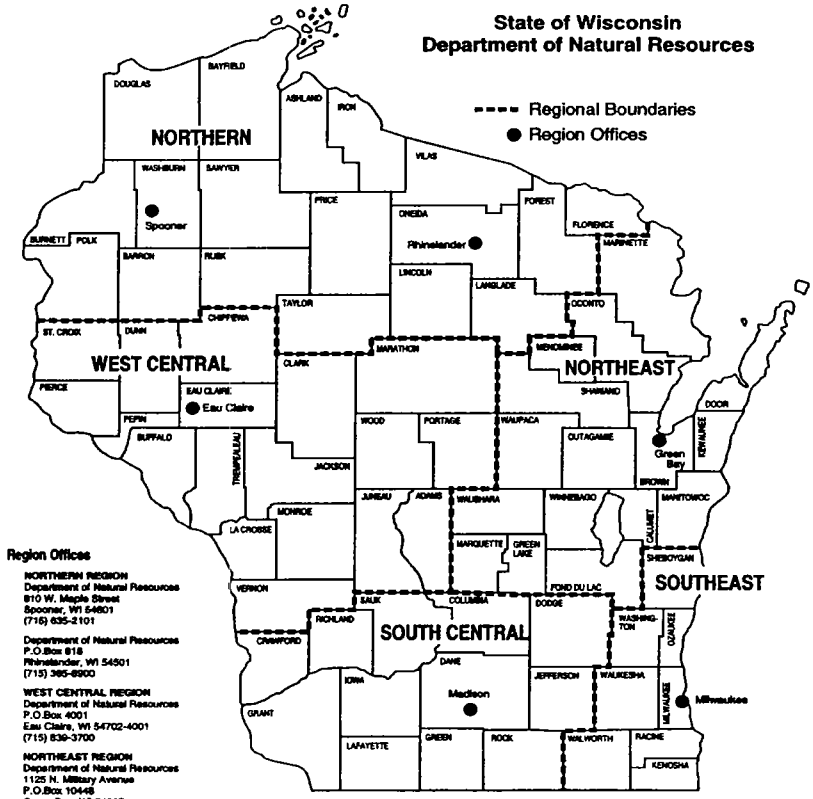


TABLE 1 – EMERGENCY TELEPHONE NUMBERS

Table 1

EMERGENCY TELEPHONE NUMBERS

General Emergency -- Sheboygan Falls Sheriff's Dept	911
Ambulance – Sheboygan Falls	911
Hospital (Sheboygan Memorial Medical Center)	(920) 451-5000
Wisconsin Department of Public Health	(608) 266-1865
Sheboygan County Health Department	(920) 459-0529
Wisconsin Department of Natural Resources (WDNR)	(414) 263-8500
Wisconsin Hazardous Material Spill Hotline	(800) 943-0003
WDNR Southeast Regional Spill Coordinator	(414) 263-8685
Sheboygan Poison Control Center	(800) 222-1212
USEPA Emergency Response & Removal Branch	(404) 562-8705
USEPA Emergency Response & Removal Branch – 24 Hour	(404) 562-8700
Wisconsin State Police	(929) 929-3700
Pollution Emergency Alert System (PEAS)	(800) 292-4706
Kohler Police	TBD

Mitigation Plan

Upper River – Phase I

Sheboygan River and Harbor Superfund Site

Sheboygan County, Wisconsin

May 2004

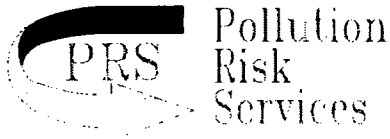
ISSUED FOR CONSTRUCTION

Prepared By

Pollution Risk Services, LLC

and

URS Corporation



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1.0 HABITATS ON OR NEAR SITE

No special habitats have been defined on the premises of the Tecumseh facility. However, the Sheboygan River is a habitat for various species of fish.

Throughout the course of mitigation, clear, achievable and measurable goals will be implemented while focusing on the feasibility of mitigation efforts. The goals throughout the mitigation effort will involve preserving and protecting aquatic resources; restoring ecological integrity and natural structure; and designing for self-sustainability.

2.0 PREVENTION OF HABITAT DESTRUCTION

To prevent damage to the Sheboygan River, sediment and erosion controls shall be in accordance with Phase I Upper River Remedial Design Specifications Section #01355, *Environmental Protection;* #02270, *Erosion and Sediment Control;* and #01356, *Storm Water Pollution Prevention Measures.*

RESTORATION OF HABITATS

To prevent damage to the Sheboygan River, the flood control berm shall be reconstructed to its original contours. If necessary, permanent sediment and erosion controls shall be installed in accordance with Specification Section #01355, section 2.2.3 of the Phase I Remedial Design Package. Areas on the Tecumseh site where construction activities occur shall be seeded after construction in accordance with Specification Section #02921. Native species saplings (trees and/or bushes) may also be planted in selected remediated areas of the river bank. This will be accomplished using vegetation or bio-engineering techniques for river bank areas after PCB removal, as necessary. Reference: "The Practical Streambank Bio-Engineering Guide" – USDA NRCS Plant Materials Center – Aberdeen, Idaho and "Guidelines for Streambank Restoration" – Georgia Soil & Water Commission suggested by the Wisconsin Department of Natural Resources.

Draft Operation & Maintenance Plan

Upper River – Phase I

Sheboygan River and Harbor Superfund Site

Sheboygan County, Wisconsin

May 2004

ISSUED FOR CONSTRUCTION

Prepared By

Pollution Risk Services, LLC

and

URS Corporation

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Table

1.0 Introduction

The following Operation and Maintenance Plan is presented in outline format to identify the maintenance of the Upper River Remedial Action and developed in accordance to the requirements of WI Department of Natural Resources (WDNR) Chapter NR-724.13, *Remedial and Interim Action Design, Implementation, Operation, Maintenance and Monitoring Requirements.* The plan covers the operation and maintenance of the following remediation systems: final cover and vegetation, groundwater monitoring/interception, and water treatment. For a description of routine monitoring and analysis during construction and remediation activities, refer to the Water Management Plan Phase I.

Various manufacturers' information describing the specific operation and maintenance requirements of their products will become attachments for future reference.

Updates to the plan, including vendor/manufacturers' O&M requirements, will be prepared: (1) upon completion of the additional design elements; (2) upon completion of construction; (3) when significant modifications are made to the remediation system; and (4) every five years, or as otherwise appropriate. Once the actual components of the system are determined, the manufacturers' written information regarding the operation and maintenance for these components will be attached to the plan. The structures, facilities and equipment associated with the WPDES discharge system will be operated and maintained in accordance with the respective regulations.

Records of the inspections and maintenance activities will be kept in a file or log book at the facility. A list of inspection and maintenance activities will be finalized and attached to this plan upon final determination of the mechanical components of the systems in question. Sample inspection forms, sample maintenance records and samples of any other records to be kept on-Property will also be finalized at this time in conformance with the requirements of the manufacturer and/or supplier.

2.0 Final Cover and Vegetation Maintenance

Staffing required:

- Provide adequate maintenance staff to perform scheduled duties to maintain final cover and vegetation;
- Hire a seeding subcontractor as needed to re-seed areas of poor vegetation.

Soil Erosion and Cohesive Barrier Repair and Maintenance:

- Inspect cover soil quarterly for gullies and erosion. This inspection schedule also applies to re-seeding, vegetative stress, tree and bush removal and maintenance of surface water collection channels;
- Place and compact fill soil in eroded areas in accordance with the applicable technical specifications;

- Eroded areas are defined as those whose gullies are deeper than 50% of the final cover thickness;
- Repairs are to be made, conditions permitting, within two weeks of inspections;
- Re-seed the areas of replacement fill soil in accordance with the applicable technical specifications;
- Utilize temporary erosion controls (such as straw bales or silt fence) until vegetation is re-established on replacement fill areas.

Seeding and Re-seeding:

- Apply seed, fertilizer and mulch in accordance with the applicable technical specifications;
- Inspect final cover vegetation quarterly;
- Designate areas of inadequate vegetative cover;
- Small areas to be re-seeded by hand;
- Large areas to be disced and then re-seeded in accordance with the applicable technical specifications.

Tree and Brush Removal:

- Inspect final cover quarterly for the first year, and annually thereafter for tree saplings and bushes growing on the final cover;
- Chop down and remove saplings and bushes growing within the limits of the final cover layer;
- Final cover vegetation to be mowed annually.

3.0 Groundwater Monitoring/Interception System Operation and Maintenance

Staffing Required:

- Provide adequate maintenance staff to perform scheduled and unscheduled duties to maintain and operate the groundwater monitoring/interception system;
- Hire a mechanical, electrical or pumping subcontractor as needed to replace or repair components of the groundwater monitoring/interception system.

Power Supply Operation and Maintenance:

- Inspect the electrical power supply in accordance with the manufacturer's recommendation and/or when malfunction occurs, but not less than semi-annually during the first year and annually thereafter;
- Repair/replace as needed.

Electronic Controls Operation and Maintenance:

- Inspect the electronic controls in accordance with the manufacturer's recommendation and/or when malfunction occurs, but not less than quarterly during the first year and semi-annually thereafter;
- Repair/replace as needed.

Pump Operation and Maintenance

- Inspect the extraction pump in accordance with the manufacturer's recommendation and/or when malfunction occurs, but not less than quarterly during the first year and semi-annually thereafter;
- Repair/replace as needed.

Interceptor Pipe Cleanout:

- Inspect interceptor pipes semi-annually during the first year and annually thereafter;
- Jet or flush interceptor pipes as needed to remove obstructions;
- Jetting, flushing or camera inspection will be performed when clogging of the pipes results in a reduction of flow rate as indicated by increased head levels in the interceptor's clean-outs.

Maintenance of Force Mains, Valves, Sumps and Other Fixtures:

- Inspect force mains, valves, sump and other fixtures semi-annually during the first year and annually thereafter and/or when malfunction occurs;
- Repair/replace as needed.

4.0 Water Treatment System Operation and Maintenance

Staffing Required:

- Provide adequate maintenance staff to perform scheduled or unscheduled duties to maintain the surface water discharge and pre-treatment system;
- Hire a mechanical, electrical or pumping subcontractor as needed to repair the surface water discharge and pre-treatment system.

Power Supply Operation and Maintenance:

- Inspect the electrical power supply in accordance with the manufacturer's recommendation and/or when malfunction occurs, but not less than semi-annually during the first year and annually thereafter;
- Repair/replace as needed.

Electronic Controls Operation and Maintenance:

- Inspect the electronic controls in accordance with the manufacturer's recommendation and/or when malfunction occurs, but not less than monthly during the first year and quarterly thereafter;
- Repair/replace as needed.

Sand Filter, Activated Carbon Units, and Storage Tanks:

- Inspect all tanks in accordance with the manufacturer's recommendation and/or when malfunction occurs, but not less than monthly during the first year and quarterly thereafter;
- Clean out Storage Tanks (Influent and Effluent/Backwash Tank) as needed;
- Replace/clean filter in Multimedia Filter as needed based upon use;
- Replenish carbon to the Activated Carbon Units as needed or upon breakthrough.

Chemical Treatment Pumps:

- Inspect all pumps in accordance with the manufacturer's recommendation and/or when malfunction occurs, but not less than monthly during the first year and quarterly thereafter;
- Repair/replace as needed.

System Operations and Inspections:

- The treatment and discharge systems will be operated in full compliance with applicable WPDES regulations;
- Monitoring of discharge will be in full compliance with WPDES regulations;
- Reporting of the results of monitoring the treatment and discharge system will be in full compliance with WPDES regulations (including mechanism for reporting emergencies);
- Discharge reports will be attached and be considered as part of the O&M Plan.
- Reference the Long-Term O&M Plan for reporting of the results of monitoring well inspections.
- Progress reports will be submitted as required if and when the water treatment system begins operation.

TABLE 1

OPERATION AND MAINTENANCE SCHEDULE

FINAL COVER AND VEGETATION MAINTENANCE		
ITEM	***OPERATION***	***FREQUENCY***
Cover Soil	Inspection	Quarterly
	Repairs	Within 2 weeks of inspection
Cover Vegetation	Inspection	Quarterly
	Reseeding	Within 2 weeks of inspection
	Mowing	Annually
Trees and Brush	Inspection	Quarterly
	Removal	Within 2 weeks of inspection

GROUNDWATER MONITORING/INTERCEPTION SYSTEM O & M		
ITEM	***OPERATION***	***FREQUENCY***
Power Supply	Inspection	Semi-annually for first year, annually thereafter and/or when malfunction occurs
	Repairs	As needed
Electronic Controls	Inspection	Quarterly for first year, semi-annually thereafter and/or when malfunction occurs
	Repairs	As needed
Pump	Inspection	Quarterly for first year, semi-annually thereafter and/or when malfunction occurs
	Repairs	As needed
Interceptor Pipe/Cleanouts	Inspection	Semi-annually for first year, annually thereafter and/or when malfunction occurs
	Jetting or Flushing	As needed
Force main System	Inspection	Semi-annually for first year, annually thereafter and/or when malfunction occurs
	Repairs	As needed

WATER TREATMENT SYSTEM OPERATION AND MAINTENANCE		
ITEM	***OPERATION***	***FREQUENCY***
Power Supply	Inspection	Semi-annually for first year, annually thereafter and/or when malfunction occurs
	Repairs	As needed
Electronic Controls	Inspection	Monthly for first year, Quarterly thereafter and/or when malfunction occurs
	Repairs	As needed
Sand/Carbon Filters and Tanks	Inspection	Monthly for first year, Quarterly thereafter and/or when malfunction occurs
	Repair/Replenish	As needed or upon breakthrough of filters
Chemical Pumps	Inspection	Monthly for first year, Quarterly thereafter and/or when malfunction occurs
	Repairs	As needed

Long Term Monitoring and Operation Plan

Upper River – Phase I

Sheboygan River and Harbor Superfund Site

Sheboygan County, Wisconsin

April 2004

Prepared By

Pollution Risk Services, LLC

and

URS Corporation

PRS Pollution Risk Services

URS

Contents

1.0 OVERVIEW

This Long-Term Monitoring and Operation (MOP) Plan is presented in accordance to the requirements of WI Department of Natural Resources (WDNR) Chapter NR-724.17, *Remedial and Interim Action Design, Implementation, Operation, Maintenance and Monitoring Requirements* and identifies the procedures to be followed to assess the effectiveness of remedial actions conducted at the Plant Site and to maintain the integrity of any barriers installed to protect human health and the environment (Reference ARARs for applicable requirements of the project). Long-Term Monitoring and Operation has three components: groundwater monitoring, periodic inspection of monitoring wells and barriers, and maintenance of monitoring wells and barriers. The three components are further described below. The results of the long-term monitoring will be reported (unless otherwise directed by the WDNR) according to NR724.17 (3).

2.0 GROUNDWATER MONITORING

Six (6) groundwater monitoring wells located downgradient of the groundwater monitoring/interceptor trench (GMIT) at the Plant Site (reference Drawing #2) shall be sampled for polychlorinated biphenyl concentrations on a semi-annual basis for a period of five years following completion of source removal activities. Based on the results of the semi-annual sampling, monitoring may continue beyond the initial five years on a frequency to be determined following discussions with the USEPA and WDNR. Sampling and decontamination procedures will be conducted in conformance with SOP #214-01 and SOP #210-01 respectively of the Field Sampling Plan (FSP). The analytical methods are detailed in the Quality Assurance Project Plan.

The following supporting SOP's found in the FSP shall also be referenced during the sampling and decontamination activities:

- SOP#P8-1 (Field Measurement of Static Water Levels)
- SOP#P8-1 (Field Measurement of Specific Conductance by Electrode)
- SOP#P8.1-1 (Field Measurement of pH by Electrode)
- SOP#P220-1 (Field Measurement of Turbidity)
- SOP#P-U10 (Field Measurement of Water Quality Parameters with Horiba U-10)
- SOP#210-1 (Decontamination of Sampling Equipment)
- SOP#200-R (Sample Identification)
- SOP#P1-1 (Chain-of-Custody, Labeling, Packaging and Shipping)

3.0 INSPECTION OF MONITORING WELLS AND BARRIERS

Inspection of the integrity of the monitoring wells, the GMIT, and engineered barriers will be conducted on an annual basis for a period of five years following completion of the source removal activities. The inspections may continue beyond the initial five years on a frequency to be determined following discussions with the USEPA and WDNR.

The integrity of the monitoring wells will be evaluated by visual inspection of the exposed well materials and depth to well bottom measurements during each semi-annual groundwater monitoring event. (Reference: the Field Sampling Plan SOP #214-01 *Groundwater Sampling* Protocol and SOP #210-01 *Decontamination of Sampling Equipment*) The information obtained will be compared to initial construction conditions to assess whether the integrity of the wells has been jeopardized.

A visual inspection of the exposed materials of the GMIT will also be conducted during each semi-annual groundwater monitoring event to determine if natural activities or vandalism has damaged the system. In addition, the depth to the base of the GMIT sump will be measured to assess the magnitude of sediment accumulation within the GMIT sump.

A visual inspection of engineered barriers (such as asphalt caps) will also be conducted for any engineered barriers that may be installed. The inspection will identify the presence of cracks, damaged areas, or vegetation that may jeopardize the integrity of the barrier.

4.0 MAINTENANCE OF MONITORING WELLS AND BARRIERS

Based on the results of the inspections, appropriate activities will be conducted to maintain the integrity of the monitoring wells and barriers. Groundwater monitoring wells that appear to have minor damage (such as broken protective pipe covers) will be appropriately repaired. Groundwater monitoring wells determined to be irreparably damaged will be abandoned in accordance with SOP #210-11 of the Field Sampling Plan. If appropriate, the monitoring well will be replaced in accordance with SOP #P11-1 of the Field Sampling Plan.

Maintenance of the GMIT operations during the construction and remediation activities will be conducted in accordance with the Operations and Maintenance Plan Upper River – Phase I.

General maintenance of the engineered barriers may include sealing of cracks, patching or replacement of the engineered barrier in damaged areas, or removal of vegetation. Patching and replacement of engineered barriers will be conducted in a manner consistent with the procedures and materials used during the original installation of the barriers.

STORMWATER POLLUTION PREVENTION PLAN

UPPER RIVER – PHASE I
SHEBOYGAN RIVER & HARBOR SUPERFUND SITE

LOCATED AT:

415 CLEVELAND STREET
SHEBOYGAN FALLS, WISCONSIN

September 2004

ISSUE FOR CONSTRUCTION

PETRO ENVIRONMENTAL LLC
7851 PALACE DRIVE
CINCINNATI, OHIO 45249

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APPENDICES

1.0 INTRODUCTION

The Phase I Stormwater Pollution Prevention Plan (SWP3) is prepared by Petro Environmental LLC (Petro) to describe the methodologies, techniques, schedule, and control measures for the stormwater and erosion control management activities to be implemented as part of construction and remediation actions at the Sheboygan River and Harbor Superfund Site. The construction and remedial activities are described in the Record of Decision (ROD), Consent Decree (CD), and Upper River Statement of Work (URSOW) and further detailed within the Upper River Remedial Design documents listed in Appendix A.

The Upper River activities associated with the Sheboygan River and Harbor Superfund Site include investigation/remediation of the Tecumseh Products Facility (Plant Site) area, the Upper River soft sediments, and floodplain soil areas. The Upper River activities will be conducted in two phases: Phase I will address remediation/control of impacted soils and groundwater at the Plant Site; Phase II will address investigation/remediation of soft sediments (including near-shore sediments and Area 1) and floodplain soils in the Upper River (from the Tecumseh site to the Walderhaus Dam).

2.0 SITE EVALUATION AND DESCRIPTION

The Plant Site is approximately 9.6 acres and is bounded by Cleveland Street to the north, the Sheboygan River to the south and west, and Hickory Street and a park to the east. The remedial and construction activities are being conducted in accordance with the Phase I Remedial Design Documents prepared by Pollution Risk Services, LLC and URS Corporation. Of the 9.6 acres, 7.6 acres are occupied by buildings, pavement, and a parking lot that make up the Plant Site. The facility ceased operation in September 2003. Prior to that, the facility had been in operation since the 1950's manufacturing small engine parts.

2.1.1 Description of the Nature of Construction Activity

The SWP3 applies to the Phase I remediation and construction activities which include: clearing and grubbing; installation of a groundwater monitoring/interceptor trench (GMIT); soil excavation and backfill; contaminated soil disposal; installation of groundwater monitoring wells; rough and final re-grading; and final seeding and mulching for site stabilization.

2.1.2 Estimate of Disturbed Areas

The total Plant Site consists of 9.6 acres, of which approximately 2 acres will be used by end/or disturbed during the construction and remediation activities.

2.1.3 Soil Description

The soil at the Plant Site is classified as the Bellevue series (Soil Survey of Sheboygan County, 1978). The Bellevue series consists of nearly level, well drained and moderately well drained soils formed in loamy alluvial material. These soils are on the flood plains of major streams and on alluvial fans. In a representative profile the surface layer is dark brown silt loam about 10 inches thick. The subsoil is about 23 inches thick and is reddish brown. It is firm silty clay loam in the upper part and friable loam in the lower part. The substratum to a depth of 60 inches is reddish brown and brown, friable, stratified silt loam, loam, and fine sandy loam. Permeability is moderate, and available water capacity is high. Organic-matter content and natural fertility are high. The depth to the groundwater is approximately 10 feet. Removal of monitoring well(s) that are encountered during construction activities will be performed in accordance to the *Field Sampling Plan* (FSP) SOP #P210-11 "Monitoring Well Abandonment." The well(s) will be relocated and installed according to SOP #P12-1 "Monitoring Well Design and Construction" and SOP #P15.1-1 "Monitoring Well Development".

2.1.4 Rainfall Data

Average high and low temperatures and rainfall for Sheboygan, Wisconsin are listed in the table below.

MONTH	AVG TEMPERATURE		MEAN TEMP	AVG PRECIP
	HIGH (°F)	LOW (°F)	(°F)	INCHES
JAN	25	9	17	1.40
FEB	30	13	22	1.25
MAR	40	23	32	2.42
APR	54	34	44	3.47
MAY	67	45	56	3.67
JUNE	77	55	66	3.93
JULY	81	60	71	3.94
AUG	79	59	69	4.55
SEPT	70	50	60	4.02
OCT	58	39	49	2.93
NOV	43	28	36	2.85
DEC	30	16	23	1.83

2.1.5 Receiving Waters

The interpreted direction of groundwater flow is south-southeast towards the Sheboygan River. The surface water drainage for the site is generally to the south-southeast. On the western and southern portions of the Plant Site, the drainage flows towards a drainage swale located on the north side of the flood control berm. On the eastern portion of the Plant Site, the drainage flows toward the City Park (See Appendix B, Petro Drawing #3).

2.1.6 Runoff Coefficient

An estimate of the runoff coefficient is used to determine the impact of the construction on runoff after the project is complete. The runoff coefficient is the

fractional amount of total rainfall that is estimated to become runoff. A low runoff coefficient indicates that the Plant Site will absorb stormwater and minimize sediments and pollutants from being discharged from the Site. A high runoff coefficient predicts that the Site sheds large amounts of rainfall and encourages erosion and sediment transport.

A runoff coefficient (c) has been calculated based on the conditions expected to be encountered at the Site prior to construction and post development with established vegetation. The runoff coefficient is calculated below.

1. Pre-construction (Existing Condition)

   a. Open space and recreational areas (A1), 2.0 acres

      C1 = 0.2

   b. Industrial and Commercial (A2), 7.6 acres

      C2 = 0.8

   Runoff Coefficient

   c = [A1(C1) + A2(C2)]/(A1 + A2) = [2.0(0.2) + 7.6(0.8)]/(2.0+7.6)

   c = (0.4 + 6.08)/9.6 = **0.675**

2. Post-construction with vegetation established

   a. Open space and recreational areas (A1), 2.0 acres

      C1 = 0.2

   b. Industrial and Commercial (A2), 7.6 acres

      C2 = 0.8

   Weighted Runoff Coefficient

   c = [A1(C1) + A2(C2)]/(A1 + A2) = [2.0(0.2) + 7.6(0.8)]/(2.0+7.6)

   c = (0.4 + 6.08)/9.6 = **0.675**

3.0 DESCRIPTION OF CONTROLS

This section details the sequence of major activities and timing for each control measure to assure proper stormwater management. Petro Drawings #4 through #6 (Appendix B) show the approximate location and details of erosion and sediment controls and stabilization practices. The actual field locations of these erosion and sediment controls may change throughout the course of construction and/or remediation activities due to changing field conditions and progressing phases of these activities..

3.1.1 Sequence of Major Activities

Construction and remediation activities will be performed in accordance to the Project Remedial Design Documents (Drawings, Specifications and Plans), *Wisconsin Construction Site Best Management Practice Handbook* (WDNR Pub WT-222), the Wisconsin Department of Transportation *Erosion Control Product Acceptability Lists* (PAL), and generally as described below:

Activity I

1. Install temporary erosion and sediment control devices as needed (silt fence, berms, etc).
2. Stake clearing limits.

Activity II

1. Clearing and grubbing from defined areas at the site. Vegetation that is cleared from a contaminated area will be managed according to the *PCB-Impacted Soil Management Plan* (SMP) and in the following manner:
   a) Separate trunk from the root;
   b) Remove loose soil/sediment from the root system;
   c) Place soil/sediment in appropriate stockpile area; and
   d) Dispose of trunk and root in the designated vegetation debris pile.
2. Install additional erosion and sediment control measures if required.

Activity III

1. Establish grid system for soil removal (Shown on the Project Remedial Design Drawing #2).
2. Excavate contaminated soil areas.

3. Collect confirmation soil samples where appropriate.

4. Backfill site to match existing grade.

Activity IV

1. Revegetate and/or re-seed all areas disturbed during construction.

3.1.2 Timing for Erosion Controls

This section includes a description of appropriate erosion controls and measures that will be implemented at the Plant Site when, or as needed. The controls will include the following minimum components;

1. Stabilization control practices.

2. Structural control practices.

The erosion controls and measures listed are discussed below and will comply with the requirements of the Project Remedial Design/Action Documents, *Wisconsin Construction Site Best Management Practice Handbook*, and Wisconsin Department of Transportation *Erosion Control Product Acceptability Lists* (PAL). This section identifies the most commonly used control measures attainable for the Plant Site but may not be all inclusive or limited to the measures identified in this plan.

Actual scheduling of the controls will be developed on a sequence with the planned activities for the project.

Activity I

1. Install berms, silt fence, and hay bales as shown on Petro Drawings #4 & #5.

Activity II

1. Install temporary stabilization measures where construction and/or remediation activities have temporarily or permanently ceased at locations shown on Petro Drawing #6.

Activity III

1. Re-vegetate/re-seed all areas disturbed during construction and/or remediation that have not already been stabilized during Activity II. The re-vegetation/re-seeding will be performed in accordance to the Design Specifications. Note, depending on the length of the construction project, revegetation may be performed during or in-conjunction with other construction activities.

Activity IV

1. Clean-up all sediment from Site. Sediment will be sampled and handle according to Specification Section #13285 *Removal and Disposal of PCB Impacted Soils* and the *PCB-Impacted Soil Management Plan* (SMP). Remove all erosion control barriers from Site as directed by the Project Coordinator.

A record of dates when major grading activities occur, when construction and/or remediation activities temporarily or permanently cease on a portion of the Plant Site, and when stabilization measures are initiated will be documented by Petro on daily reports.

3.1.2.1 Stabilization Control Practices

Stabilization controls will be used at the Plant Site to minimize runoff and reduce the sediment loading in stormwater both temporarily and permanently. Stabilization measures (such as seeding, mulching, etc.) to control erosion are required to be initiated as soon as practicable in portions of the Plant Site where construction activities have temporarily or permanently ceased. Temporary stabilization practices will be initiated in accordance with the Remedial Design/Action Documents, *Wisconsin Construction Site Best Management Practice Handbook* (WDNR Pub WT-222) and the Wisconsin Department of Transportation *Erosion Control Product Acceptability Lists* (PAL).

The timeframes for the temporary practices are as follows:

1. Any disturbed area within 50 feet of a stream and not at final grade will have temporary erosion controls within 2 days of the most recent disturbance, if the area will remain idle for more that 21 days.

2. Any disturbed area not within 50 feet of a stream that will be dormant for more than 21 days but less than one year will have temporary erosion control practices applied within 7 days of the most recent disturbance to the area.

3. If areas lie dormant over the winter, apply temporary erosion controls prior to the onset of winter.

The timeframes for the permanent practices are as follows:

1. If areas will lie dormant for one year or more, permanent erosion controls will be applied within 14 days of the most recent disturbance.

2. For any area within 50 feet of a stream and at final grade,

permanent erosion controls will be applied within 2 days of reaching final grade.

3. For any other areas that are at final grade, permanent erosion controls will be applied within 14 days of reaching final grade within that area.

The following are typical temporary and permanent erosion control methods that may be used during stabilization of the Site:

Vegetative Methods

1. Temporary or permanent seeding involves growing a vegetative cover over disturbed areas. For permanent seeding, all seeding will be completed by September 15th. Grass and legume mixtures will be seeded prior to July 15th. Dormant seeding will be done from September 15th to November 15th.

2. Sod Stabilization provides immediate ground cover to minimize erosion on disturbed areas that may be subject to erosion.

Non-vegetative Methods

1. Mulching is a temporary soil stabilization or erosion prevention technique used where materials such as grass, hay, wood chips, and straw or vegetative construction waste are placed on the soil surface.

2. Geotextiles such as fabrics or other synthetic materials can be used to temporarily stabilize an area.

3. Erosion Control Matting is a temporary or permanent erosion control device used to stabilize easily erodible areas such as channels and steep slopes.

4. Rock Check Dams are small rock dams constructed in grassed swales to reduce the velocity of water.

3.1.2.2 Structural Control Practices

Sediment controls will be used at the Plant Site to control erosion and trap sediment. Sediment control practices will be functional throughout the duration of the earth disturbing portion of the construction project and will be installed 7 days before disturbing activities are performed. Any post clean-up of sediment will be handled according to Specification Section #13285 *Removal and Disposal of PCB Impacted Soils* and the *PCB-Impacted Soil Management* Plan (SMP).

Several practices will be used, as needed, to control sediment transport and

improve the quality of stormwater discharged from the Plant Site. Some of these practices include hay bales, silt fence, earthen diversion berms and channels that direct flow to one of these features. Listed below are examples of sediment controls that will be used.

1. Straw Bales should be used in drainage courses perpendicular to the direction of flow to reduce the velocity of flow, minimize stream scour, and capture sediment. At a minimum, straw bales shall be placed before culverts and around drains.

2. Silt Fence is a sediment trapping device that utilizes a geotextile fence and topography to cause sediment deposition from sheet flow, typically at the perimeter of a disturbed area. Silt fence should be placed on a level contour to maximize soil deposition and several feet away from the toe of a slope when possible.

3.1.3 Stormwater Management

Plant Site stormwater runoff that comes in contact with PCB-impacted materials will be isolated and/or collected in berms, drums or poly tanks. The water will be sampled and treated, if required, using the onsite contingency water treatment system in accordance to the *Water Management Plan* (WMP).

3.1.4 Federal, State or Local Plans

Any required Federal, State or Local plans and permits will be submitted prior to establishing erosion control activities.

3.1.5 Inspections and Maintenance

Sediment, runoff and erosion control measures installed at the Plant Site will be inspected by Petro throughout the duration of the construction and remediation activities. This individual will have sufficient knowledge of the policies and procedures established under this plan and the technical ability to ensure that the pollution prevention practices are in good working order, and will be responsible for conducting inspections. A copy of the inspection form is provided in Appendix C.

This plan requires that disturbed areas that have not yet been finally stabilized be inspected at least once every seven calendar days and within 24 hours following the end of a storm event that is 0.5 inches or greater. Inspections will cover:

1. Disturbed areas at the Plant Site or material storage areas that are exposed to precipitation and have not been finally stabilized.

2. Structural control measures.

3. Accessible locations or points where discharges occur.

4. Locations where vehicles enter or exit the Site.

In general, the inspection will determine if the control measures have been installed correctly, whether or not damage has occurred to the control measure since it was installed, and what will be done to correct damages should they be identified.

If the inspection indicates that a control measure needs repair or maintenance, the repair or maintenance will be completed within 48 hours of the inspection. In the case of sediment basins, they must be repaired or maintained within 7 days of the inspection.

If the inspection indicates that the control measure does not meet its intended function and that a more appropriate control measure is required, the new control device will be installed within seven days of the inspection.

If the inspection indicates that a control measure has not been installed or implemented in accordance with any permit requirements or specification, the control device must be installed and/or implemented prior to the next storm event that produces runoff from the Site, but in no case later than seven days from the date of the inspection. If the inspection indicates that the control measure is not needed, the record must explain why this is the case.

Upon completion of the inspection, a copy of the inspection report will be forwarded to the Project CQA Staff for inclusion into the Daily Quality Control Report and appropriate follow-up.

APPENDIX A

PHASE I DOCUMENT LIST

Appendix A

PHASE I DOCUMENT LIST

NOTE: The following Remedial Design/Remedial Action documents referenced in the Stormwater Pollution Prevention Plan (SWP3) and include:

1. Phase I 100% Upper River Remedial Design Narrative

2. Phase I 100% Upper River Remedial Design Work Plan Narrative

3. Phase I 100% Upper River Remedial Action Work Plan

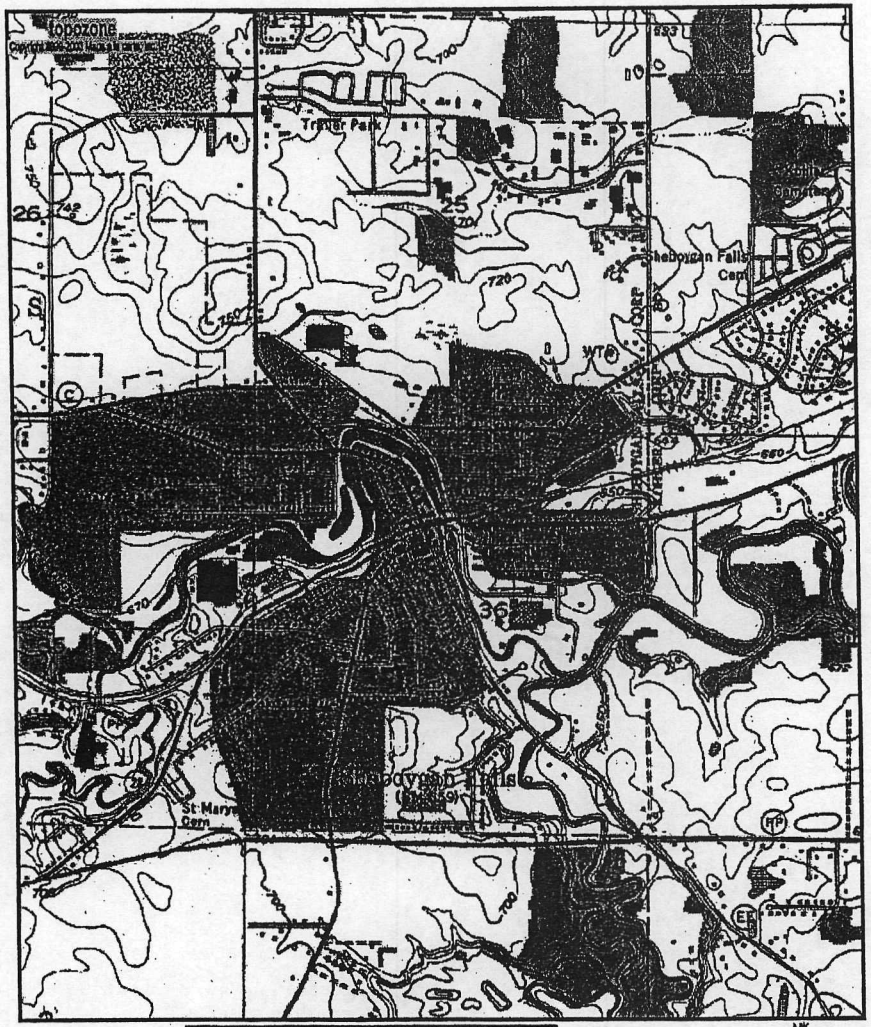
4. Phase I 100% Upper River Remedial Action Drawings
   - Drawing 1 – Title Sheet
   - Drawing 2 – Groundwater Monitoring/Interceptor Trench
   - Drawing 3 – Detail Sheet
   - Drawing 4 – GMIT Profile
   - Drawing 5 – Source Control Removal Areas
   - Drawing 6 – Preferential Pathways
   - Drawing 7 – Impacted River Bank Soil Areas
   - Drawing 8 – Facilities Drawing
   - Drawing 9 – Erosion Control Details

5. Phase I 100% Upper River Remedial Action Specifications
   - Section 01050 – Construction Staking
   - Section 01355 – General Environmental Protection
   - Section 01356 – Stormwater Pollution Prevention Measures
   - Section 02100 – Site Preparation
   - Section 02220 – General Earthwork
   - Section 02230 – Site Clearing and Grubbing
   - Section 02270 – Erosion and Sediment Control
   - Section 02921 – Seeding
   - Section 13285 – Removal and Disposal of PCB Impacted Soils

6. Phase I 100% Upper River Remedial Action Plans
   - PCB Impacted Soil Management Plan (SMP)
   - Water Management Plan (WMP)

APPENDIX B

DRAWINGS



Map center is UTM 16 434717E 4841896N (NAD27)
Sheboygan Falls quadrangle
Projection is UTM Zone 16 NAD83 Datum

M=-8.284
G=-0.56

N

General Notes

TOPO DRAWING

No.	Revision/Issue	Date

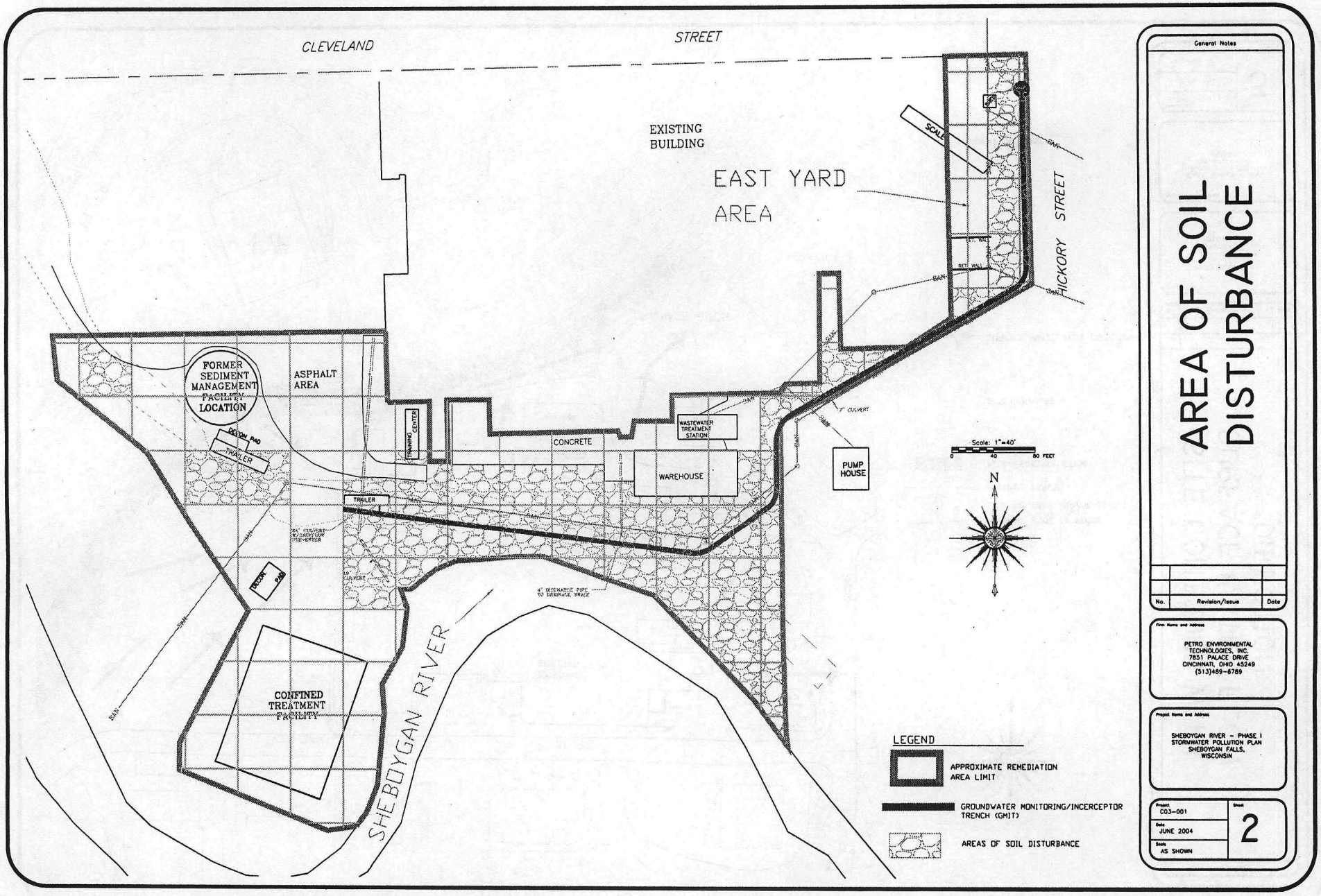
Firm Name and Address

PETRO ENVIRONMENTAL TECHNOLOGIES, INC.
7651 PALACE DRIVE
CINCINNATI, OHIO 45249
(513)489-6789

Project Name and Address

SHEBOYGAN RIVER – PHASE I
STORMWATER POLLUTION PLAN
SHEBOYGAN FALLS,
WISCONSIN

Project	Sheet
C03-001	1
Date: JUNE 2004	
Scale: AS SHOWN	



AREA OF SOIL DISTURBANCE

General Notes

No.	Revision/Issue	Date

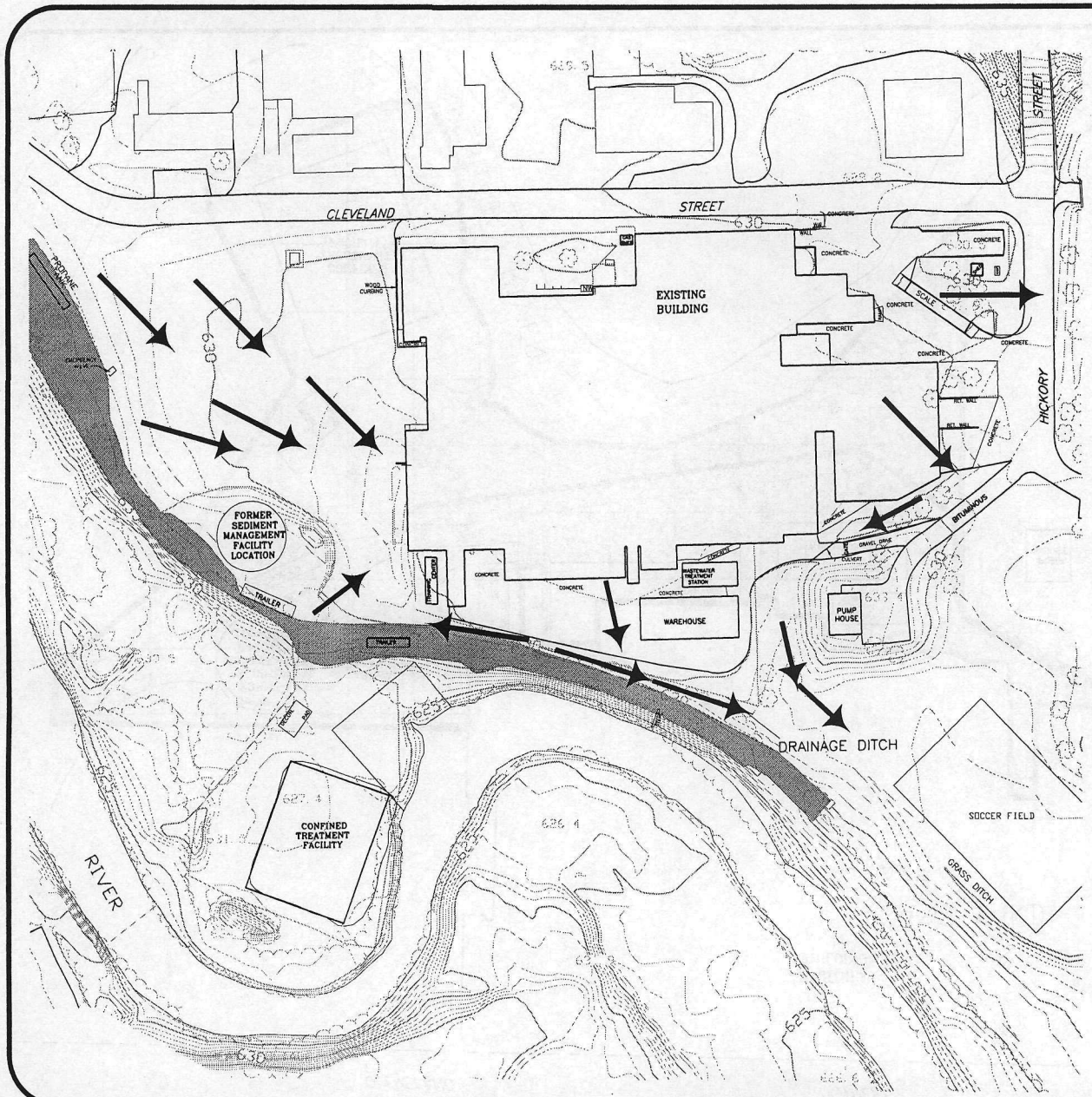
Firm Name and Address

PETRO ENVIRONMENTAL TECHNOLOGIES, INC.
7851 PALACE DRIVE
CINCINNATI, OHIO 45249
(513)489-6789

Project Name and Address

SHEBOYGAN RIVER - PHASE I
STORMWATER POLLUTION PLAN
SHEBOYGAN FALLS,
WISCONSIN

Project	Sheet
C03-001	2
Date: JUNE 2004	
Scale: AS SHOWN	



N

LEGEND

- EXISTING EDGE OF RIVER
- EXISTING TREE AND/OR BRUSH
- EXISTING FENCE
- FLOOD CONTROL BERM
- SITE CONTOURS
- SURFACE WATER FLOW DIRECTION

Scale: 1"=40'
0 40 80 FEET

SITE CONTOURS WITH SURFACE WATER FLOW DIRECTION

General Notes

No.	Revision/Issue	Date

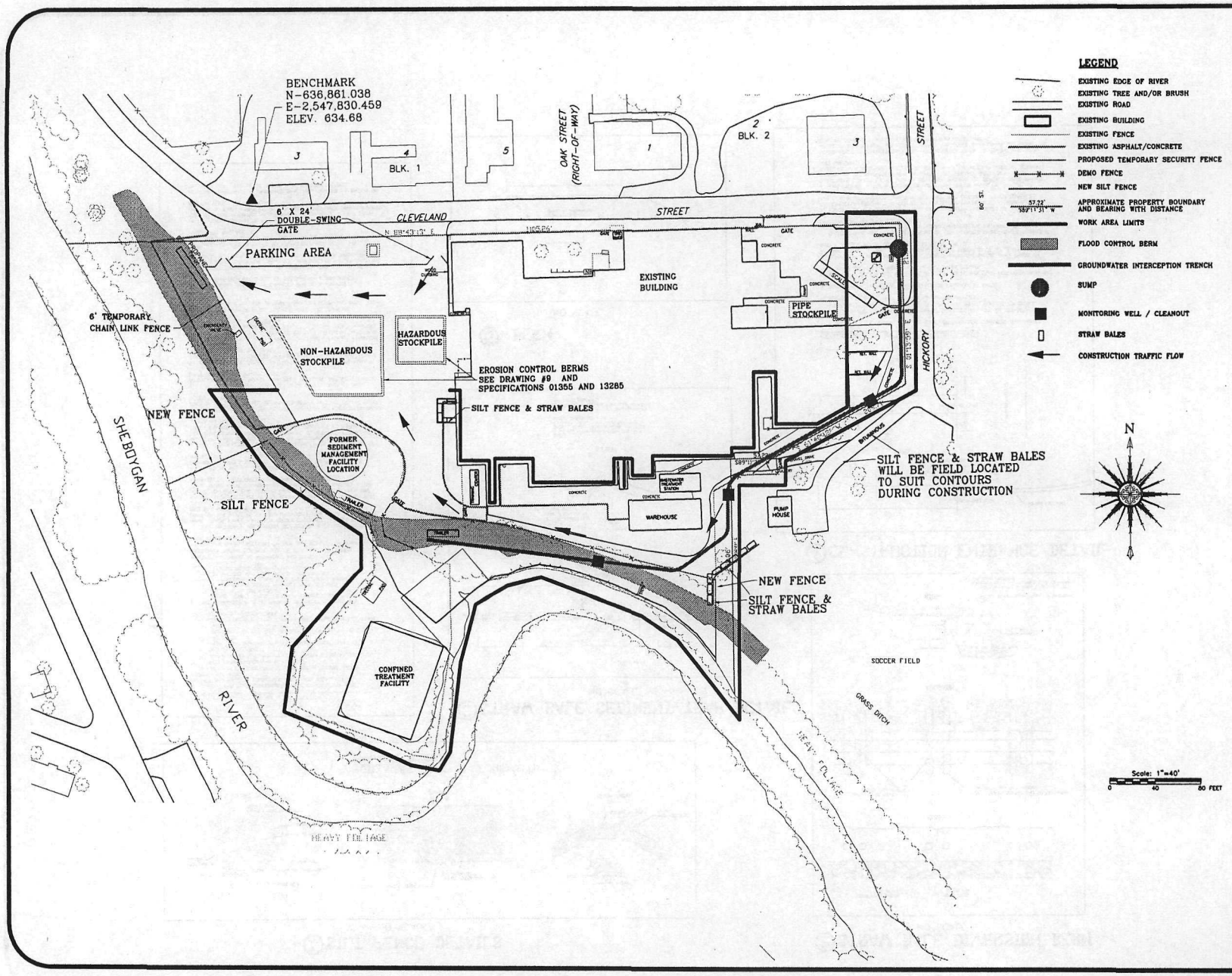
Firm Name and Address

PETRO ENVIRONMENTAL TECHNOLOGIES, INC.
7851 PALACE DRIVE
CINCINNATI, OHIO 45249
(513)489-6789

Project Name and Address

SHEBOYGAN RIVER – PHASE I
STORMWATER POLLUTION PLAN
SHEBOYGAN FALLS,
WISCONSIN

Project: C03-001	Sheet: 3
Date: JUNE 2004	
Scale: AS SHOWN	



General Notes

EROSION CONTROL LOCATIONS

No.	Revision/Issue	Date

Firm Name and Address

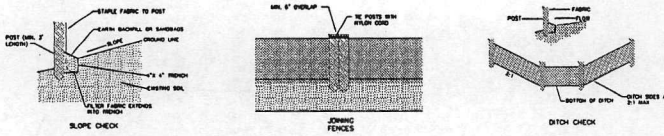
PETRO ENVIRONMENTAL
TECHNOLOGIES, INC.
7851 PALACE DRIVE
CINCINNATI, OHIO 45249
(513)489-6789

Project Name and Address

SHEBOYGAN RIVER – PHASE I
STORMWATER POLLUTION PLAN
SHEBOYGAN FALLS,
WISCONSIN

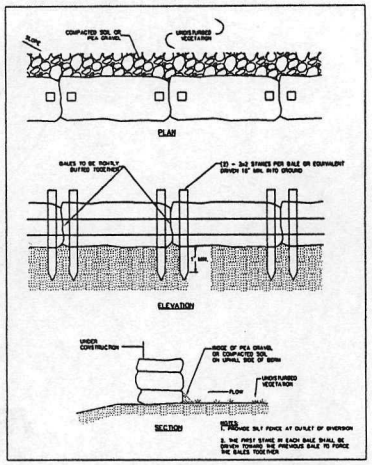
Project	Sheet
C03-001	4
Date: JUNE 2004	
Scale: AS SHOWN	

① SILT FENCE DETAILS
NO SCALE



NOTE: SILT FENCE TO BE INSTALLED PARALLEL TO SLOPE

② STRAW BALE DIVERSION BERM
NO SCALE



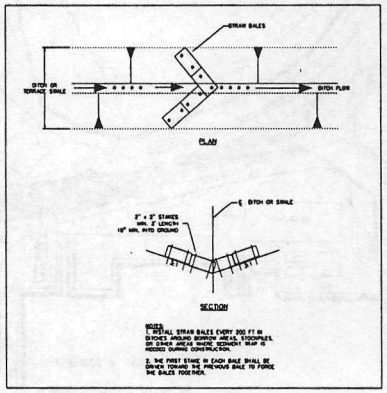
EROSION AND SEDIMENT CONTROL

1. DURING AND POST CONSTRUCTION THE CONTRACTOR SHALL PROVIDE PROPER SOIL EROSION AND CONTROL MEASURES IN ACCORDANCE WITH:
   - PROJECT SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES."
   - PROJECT SPECIFICATION SECTION 02270 "EROSION AND SEDIMENT CONTROL."
   - WDNR CONSTRUCTION SITE BEST MANAGEMENT PRACTICE HANDBOOK,
   - WDOT EROSION CONTROL PRODUCT ACCEPTABILITY LISTS (PAL), AND
   - AS DESCRIBED BY THE CURRENT APPLICABLE FEDERAL, STATE, OR LOCAL REQUIREMENTS.
2. THE CONTRACTOR SHALL PROVIDE SEDIMENT CONTROL AT:
   1. ALL POINTS WHERE PROJECT WATERS LEAVE THE LIMITS OF THE PROJECT,
   2. ALL POINTS WHERE PROJECT WATERS ENTER PORTIONS OF COMPLETED UNDERGROUND PIPING,
   3. AROUND ANY AREA DESIGNATED FOR SOIL STOCKPILING OR MATERIAL STAGING.

ACCEPTED METHODS OF PROVIDING AND MAINTAINING EROSION/SEDIMENT CONTROL INCLUDE BUT ARE NOT LIMITED TO: HAY/STRAW BALES, SEDIMENT BASINS, SILT FENCE, TEMPORARY GROUND COVER.

3. ANY DISTURBED AREA WITHIN 50 FEET OF A STREAM AND NOT AT FINAL GRADE SHALL HAVE TEMPORARY EROSION CONTROLS WITHIN 2 DAYS OF THE MOST RECENT DISTURBANCE IF THE AREA WILL REMAIN IDLE FOR MORE THAN 21 DAYS.
4. ANY DISTURBED AREAS NOT WITHIN 50 FEET OF A STREAM THAT WILL BE DORMANT FOR MORE THAN 21 DAYS, BUT LESS THAN ONE YEAR, SHALL HAVE TEMPORARY EROSION CONTROLS APPLIED WITHIN 7 DAYS OF THE MOST RECENT DISTURBANCE TO THE AREA.
5. IF AREAS WILL LIE DORMANT OVER THE WINTER, TEMPORARY EROSION CONTROLS SHALL BE APPLIED PRIOR TO THE ONSET OF WINTER.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY SEDIMENT DEVICES AT THE CONCLUSION OF CONSTRUCTION BUT NOT BEFORE GROWTH OF PERMANENT GROUND COVER (AMOUNT OF GROUND COVER NECESSARY TO BE DETERMINED BASED ON FIELD CONDITIONS).
7. IF AREAS WILL LIE DORMANT FOR ONE YEAR OR MORE, PERMANENT EROSION CONTROLS SHALL BE APPLIED WITHIN 14 DAYS OF THE MOST RECENT DISTURBANCE.
8. FOR ANY AREA WITHIN 50 FEET OF A STREAM AND AT FINAL GRADE, PERMANENT EROSION CONTROLS SHALL BE APPLIED WITHIN 2 DAYS OF REACHING FINAL GRADE.
9. FOR ANY OTHER AREAS THAT ARE AT FINAL GRADE, PERMANENT EROSION CONTROLS SHALL BE APPLIED WITHIN 14 DAYS OF REACHING FINAL GRADE WITHIN THAT AREA.
10. DISTURBED AREAS THAT HAVE NOT YET BEEN FINALLY STABILIZED SHALL BE INSPECTED AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS FOLLOWING THE END OF A STORM EVENT THAT IS 0.5 INCHES RAINFALL OR GREATER.
11. THE CONTRACTOR SHALL PROVIDE ADEQUATE DRAINAGE (CONSISTENT WITH SEDIMENT/EROSION PRACTICES) OF THE WORK AREA AT ALL TIMES.
12. NECESSARY REPAIRS TO DAMAGED BARRIERS AND/OR REPLACEMENT OF SAME SHALL BE ACCOMPLISHED IMMEDIATELY.
13. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH RAINFALL OR WHEN LEVEL OF DEPOSIT REACHES APPROXIMATELY ONE-THIRD THE HEIGHT OF SILT FENCE AND ONE-HALF THE HEIGHT OF STRAW BALES.
14. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIERS ARE NO LONGER REQUIRED SHALL BE REGRADED AS NECESSARY AND SEEDED.
15. EROSION CONTROL SILT FENCE SHALL BE INSTALLED DURING CONSTRUCTION ACTIVITIES AT A MINIMUM DISTANCE OF 5 FEET FROM THE TOE OF EACH EARTH MOUND OR ALONG PROPERTY LINE IF MOUND NOT PRESENT. SEE DETAIL 6.
16. THE CONSTRUCTION ENTRANCE SHALL BE LOCATED AS SHOWN ON THE SITE MAP. SEE DETAIL 9 FOR CONSTRUCTION DETAILS.

③ STRAW BALE SEDIMENT TRAP DETAIL
NO SCALE



④ CONSTRUCTION ENTRANCE DETAIL
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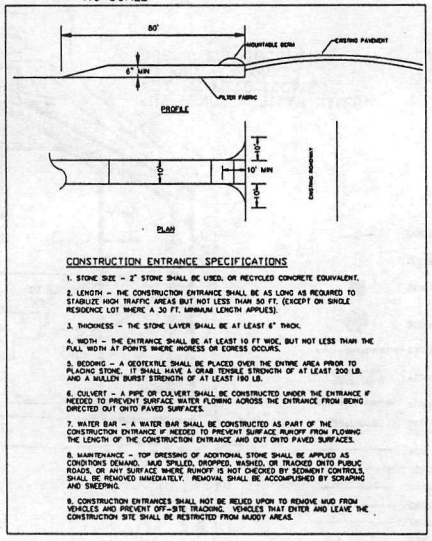
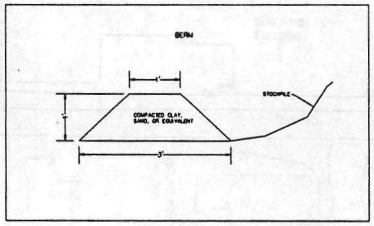


CONSTRUCTION ENTRANCE SPECIFICATIONS

1. STONE SIZE - 2" STONE SHALL BE USED, OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - THE CONSTRUCTION ENTRANCE SHALL BE AS LONG AS REQUIRED TO STABILIZE HIGH TRAFFIC AREAS BUT NOT LESS THAN 50 FT. (EXCEPT ON SINGLE RESIDENCE LOT WHERE A 30 FT. MINIMUM LENGTH APPLIES).
3. THICKNESS - THE STONE LAYER SHALL BE AT LEAST 6" THICK.
4. WIDTH - THE ENTRANCE SHALL BE AT LEAST 10 FT WIDE, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. BEDDING - A GEOTEXTILE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE. IT SHALL HAVE A GRAB TENSILE STRENGTH OF AT LEAST 200 LB. AND A MULLEN BURST STRENGTH OF AT LEAST 190 LB.
6. CULVERT - A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE IF NEEDED TO PREVENT SURFACE WATER FLOWING ACROSS THE ENTRANCE FROM BEING DIRECTED OUT ONTO PAVED SURFACES.
7. WATER BAR - A WATER BAR SHALL BE CONSTRUCTED AS PART OF THE CONSTRUCTION ENTRANCE IF NEEDED TO PREVENT SURFACE RUNOFF FROM FLOWING THE LENGTH OF THE CONSTRUCTION ENTRANCE AND OUT ONTO PAVED SURFACES.
8. MAINTENANCE - TOP DRESSING OF ADDITIONAL STONE SHALL BE APPLIED AS CONDITIONS DEMAND. MUD SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC ROADS, OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS, SHALL BE REMOVED IMMEDIATELY. REMOVAL SHALL BE ACCOMPLISHED BY SCRAPING AND SWEEPING.
9. CONSTRUCTION ENTRANCES SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES AND PREVENT OFF-SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION SITE SHALL BE RESTRICTED FROM MUDDY AREAS.

⑤ BERM
NO SCALE



General Notes

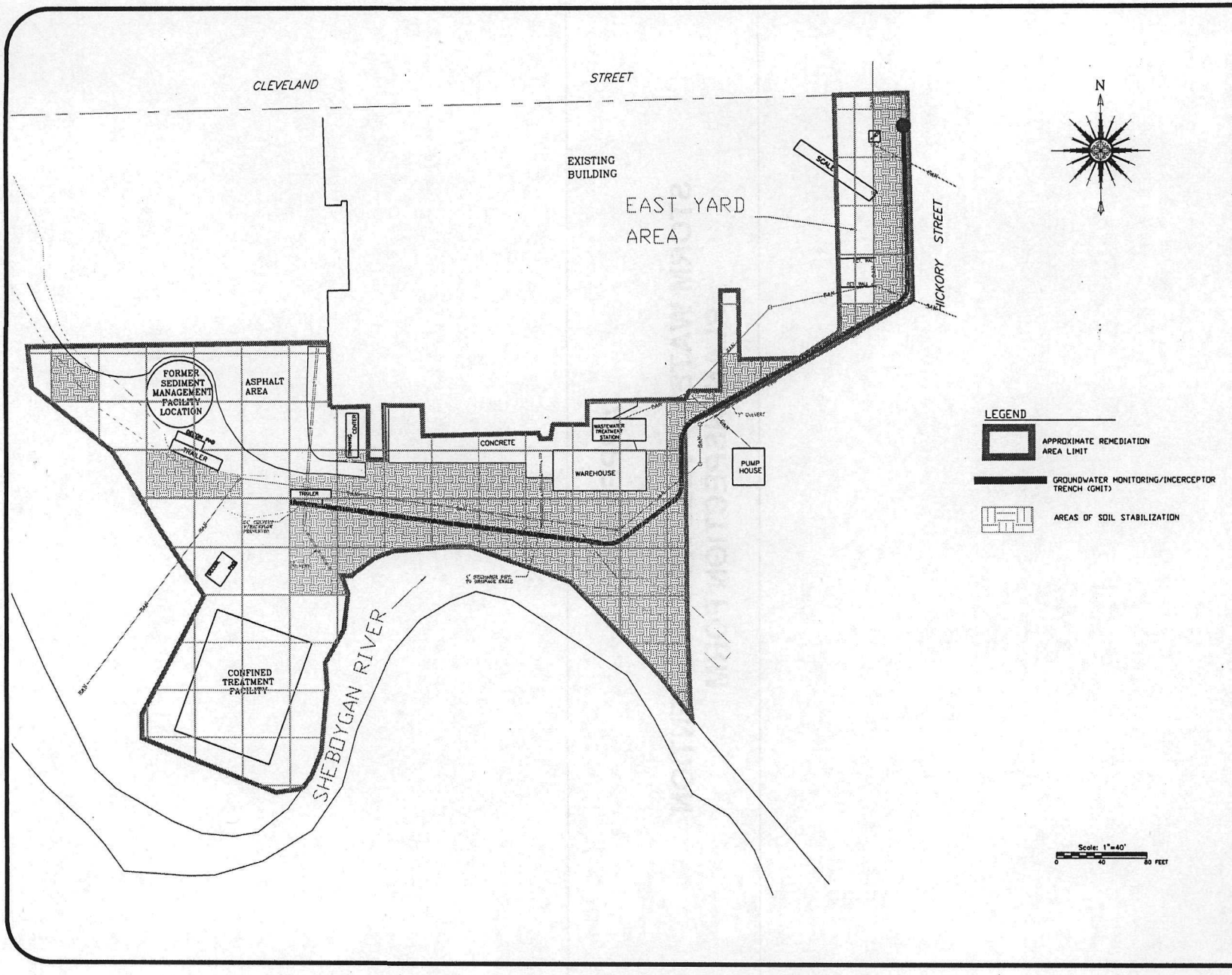
EROSION CONTROL DETAILS

No.	Revision/Issue	Date

Firm Name and Address
PETRO ENVIRONMENTAL TECHNOLOGIES, INC.
7851 PALACE DRIVE
CINCINNATI, OHIO 45249
(513)489-6789

Project Name and Address
SHEBOYGAN RIVER - PHASE I
STORMWATER POLLUTION PLAN
SHEBOYGAN FALLS, WISCONSIN

Project	C03-001	Sheet
Date	JUNE 2004	5
Scale	AS SHOWN	



AREA OF SOIL STABILIZATION

General Notes

No.	Revision/Issue	Date

Firm Name and Address

PETRO ENVIRONMENTAL
TECHNOLOGIES, INC.
7851 PALACE DRIVE
CINCINNATI, OHIO 45249
(513)489-6789

Project Name and Address

SHEBOYGAN RIVER – PHASE I
STORMWATER POLLUTION PLAN
SHEBOYGAN FALLS,
WISCONSIN

Project: C03-001	Sheet: 6
Date: JUNE 2004	
Scale: AS SHOWN	

APPENDIX C

STORM WATER POLLUTION PREVENTION PLAN INSPECTION FORM

SHEBOYGAN RIVER & HARBOR SUPERFUND SITE

STORMWATER POLLUTION PREVENTION PLAN INSPECTION FORM

Note: Petro Environmental, LLC is required to inspect the site for storm water and other pollution problems, such as diesel spills, once every 7 days and within 24 hours of 0.5 inch or greater rainfall.

Name of Contractor's Inspector_____

Date_____ Time: _____a.m. _____p.m.

Current Weather Conditions_____

Current Soil Moisture Conditions (Check one): Dry____ Moist____ Wet

Inches of Rainfall in Last 24 hours: _____

OBSERVATIONS

Note any problems with the following Erosion/Pollution Controls (if applicable):

Hay Bales_____

_____

Silt Fences_____

_____

Sedimentation Basins_____

_____

Ditches (if in place)_____

_____

Other (erosion of soil, spills)_____

_____

Corrective Measures, if any.

Note: If erosion controls are damaged or if none are present where it is apparent that erosion or other pollution is occurring, then the pollution controls should be repaired or added, as needed, to minimize erosion or other pollutants from leaving the site. Any repairs to controls or cleanup of spills shall be completed immediately.

What was done to correct any problems:_____

Date of Corrective Measure:_____

SHEBOYGAN RIVER & HARBOR SUPERFUND SITE

STORMWATER POLLUTION PREVENTION PLAN INSPECTION FORM
(Continued)

Certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

_____ _____

Project Manager
Petro Environmental, LLC

Date:

Remedial Action Work Plan

Upper River – Phase I

Sheboygan River and Harbor Superfund Site

Sheboygan County, Wisconsin

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ISSUE FOR CONSTRUCTION

Prepared By

Pollution Risk Services, LLC

and

URS Corporation

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ATTACHMENTS

1.0 INTRODUCTION

The Phase I Upper River Remedial Action Work Plan (RAWP) is prepared for the Upper River portion of the Sheboygan River and Harbor Superfund Site construction and remediation activities in accordance with the Consent Decree (CD) and Upper River Statement of Work (URSOW). The RAWP provides an overview of work objectives, a detailed description of the remediation and construction activities, and the documents used to perform the work including the control and/or removal of PCB-impacted source materials at the Tecumseh Products plant site ("Plant Site").

Phase I (Plant Site and Source Materials) is defined in the URSOW, attached to the CD, and includes the following areas of concern:

1. Plant Site groundwater;
2. Riverbank soils;
3. Source materials with significantly elevated PCB concentrations; and,
4. Other significant source areas or preferential pathways identified during the execution of the Phase I remedial action of the Plant Site.

Throughout the RAWP, numerous documents are referenced which further define the scope of work and the specific remediation and construction activities required. Documents required for the execution of the Phase I portion of the Project are identified in the Upper River Remedial Design Submittal Register and listed in Attachment A.

The means and actions employed by the Upper River Remedial Action Project Team to insure compliance with these contractual documents and associated regulatory requirements are specifically identified in the *Quality Assurance Project Plan* (QAPP) and the *Construction Quality Assurance Plan* (CQAP).

The CQAP specifically describes the procedures and components necessary to document the construction quality control process from the selection of materials to construction completion and applies to all site activities performed in conjunction with the approved Contract Drawings, Specifications and Work Plans.

2.0 PROJECT TEAM

The parties discussed in this RAWP are associated with the ownership, design, manufacture, supply, transportation, installation and quality assurance for the construction activities associated with the remedial action. They form the base structure for the Upper River Remedial Action Project Team and include:

- **Project Coordinator** -- Pollution Risk Services, LLC (PRS) is the Project Coordinator (further delineated in the QAPP) and will have the ultimate responsibility to ensure the construction is in general accordance with the approved Contract Drawings and Specifications. PRS will be responsible for submitting required information to the appropriate regulatory agencies.

- **Engineering and Design Manager** -- The individual designated by PRS as the Engineering & Design Manager will be responsible for the engineering design and Contract Drawings and Specifications for the final remedial action. The Engineering & Design Manager will be responsible for approving all design and specification changes and making design clarifications, which may be required during construction.

- **Supervising Contractor** -- URS Corporation (URS) is selected as the Supervising Contractor (further delineated in the QAPP) and will act as the PRS representative during the permitting, remediation and construction activities for Phase I. URS will perform all tasks relative to Sections VI (Performance of the Upper River Work by the Settling Defendant), VII (Quality Assurance, Sampling, and Data Analysis) and XIV (Emergency Response) as defined in the CD and QAPP and function as the primary consultant to the Project Coordinator. URS will verify that all work performed is in accordance with the CD and in a manner that is protective of human health and the environment. URS will be responsible for implementation of the CQAP and coordination of the construction quality assurance activities. URS shall also serve as communication coordinator for the project.

- **USEPA Project Coordinator** -- The USEPA Project Coordinator will track overall progress of the project and compliance in meeting the conditions of the URSOW and the CD.

- **WDNR Project Manager** -- The WDNR Project Manager, in conjunction with the USEPA, will provide review of overall project activities, monitor progress, and communicate with other WDNR project personnel.

- **Health and Safety Manager** -- Designated by PRS, the Health and Safety Manager will be responsible for coordination and communication with the Project Coordinator (PRS), Supervising Contractor (URS), and the Contractor (Petro Environmental LLC) regarding all health and safety issues. The Health and Safety Manager will implement the requirements of the *Health and Safety Plan* (HASP) for the duration of the field activities.

- **Remediation Contractor** -- Petro Environmental LLC (Petro) has been selected to perform the remediation and construction activities and will implement the requirements of Contract Drawings, Specifications and Work Plans for the Phase I portion of this project. The key Project Team members for Petro will be the Project Manager (PM) and the General Superintendent (GS). The PM is responsible for the coordination and management of the work performed by Petro. The PM is also responsible for: establishing and maintaining communication with PRS, the Supervising Contractor, the Health & Safety staff, vendors, and subcontractors. Reporting directly to the PM will be the General Superintendent (GS) who will supervise and direct the daily field activities of Petro craft personnel, equipment, subcontractors and suppliers.

3.0 SCOPE OF WORK

The Scope of Work for Phase I is divided into eight (8) definable features of work identified in the URRD Narrative. The definable features of work are: contractor submittals, mobilization, construction of groundwater monitoring/interceptor trench (GMIT), PCB source excavation, soil transportation and disposal of hazardous material, soil transportation and disposal of non-hazardous material, verification sampling, and site restoration. Each activity is discussed below.

3.1 Contractor Submittals

The Contractor Submittal activity includes all submittals specified in the CD, the URSOW and as specified in Specification 01300, *Submittals*. Prior to mobilization, Petro will provide a detailed construction Submittal Register listing additional documents and/or material samples required to comply with Specification Section 01451, *Contractor Quality Control*, and will prepare project record documents in compliance with Specification Section 01720, *Project Record Documents*.

The Phase I Construction Schedule provides the schedule of construction activities for the work. The Phase I Construction Schedule shall be updated monthly by Petro, or as required by the Project Coordinator, and attached to the Project monthly progress report.

3.2 Mobilization

The mobilization activities by Petro will commence in accordance to the Phase I Construction Schedule and will include all the items necessary to prepare the Site for the Phase I remedial action work. The mobilization activities involved are in conjunction with the Design Drawings, Design Specifications and Work Plans, and will include:

- Training and meetings (Reference Specification Section 01155 and 01200, CQAP, and HASP);
- Temporary employee parking;
- Temporary utilities and facilities (Reference Specification Section 01500);
- Computer & telephone service (Reference Specification Section 01500);
- Equipment and material mobilization (Reference Specification Section 01600);
- Construction surveying and staking (Reference Specification Section 01050);
- General environmental protection (Reference Specification Section 01355);
- Storm water pollution prevention measures (Reference Specification Section 01356, Water Management Plan (WMP), & Stormwater Pollution Prevention Plan (SWP3));
- Surface water and erosion control (Reference Specification Section 02270, WMP, & SWP3);
- Site preparation, clearing and grubbing and construction of temporary staging area(s) (Reference Specification Sections 02100, 02230 & SWP3);
- Preparation of control and decontamination areas (Reference Specification Section 13285 and PCB-Impacted Soil Management Plan (SMP)); and,
- Retrofit, and/or make operational, the on-site contingency water treatment facility (Reference WMP).

3.3 Construct the Groundwater Monitoring/Interceptor Trench & Groundwater Monitoring Wells

The construction activities involved in the groundwater monitoring/interceptor trench (GMIT) are in accordance to the Design Drawings and Specifications, PCB-Impacted Soil Management Plan (SMP), and the Water Management Plan (WMP) and include:

- General earthwork (Reference Specification Section 02220);
- Trenching, backfilling, and compaction (Reference Specification Section 02221 & SMP);
- Dewatering (Reference WMP);
- Erosion and sediment control (Reference Specification Section 02270, WMP, & SWP3);
- Removal and staging of PCB impacted materials from the trench excavation (Reference Specification Section 13285, SMP); and,
- Installation of groundwater monitoring wells (Reference *Field Sampling Plan* FSP).

Once the GMIT has been excavated, Petro will install materials shown on the Design Drawings and include:

- Geotextile Fabric (Reference Specification Section 02373);
- Pipe (Reference Specification Section 02619); and
- Underground power/control conduit and wiring (Reference Specification Section 16302).

Petro will also install a sump pump (including power and controls); pump discharge force main from the sump to the on-site contingency water treatment facility (CWTF), three cleanouts; installation of bentonite plugs around each of the preferential pathways encountered during the trenching; if required, splicing and repairing of underground active utilities encountered during the trenching; submittal of as-built shop drawings; and testing and commissioning of the GMIT.

Downgradient of the GMIT, six (6) new monitoring wells will be located and installed in accordance to the Design Drawings and FSP. URS (or PRS designee) will be responsible for the location and installation of these new wells. The new wells will be constructed similar to the existing water table wells (depth approximately 16'-17' bgs, screened interval 7'-17' bgs). Once installed, groundwater samples from the new wells, new cleanouts and existing wells will be sampled by PRS (or designee) for laboratory analysis for total and dissolved phase PCBs to determine the initial concentration of PCBs in the groundwater and GMIT.

The new and existing monitoring wells located downgradient of the GMIT will be sampled semi-annually by PRS (or designee) for the first five years to measure the overall efficiency of the Plant Site source removal. If the sample results for the downgradient wells indicate that dissolved phase PCB concentrations in groundwater are decreasing, the GMIT will not be operated. If dissolved phase PCB concentrations in

groundwater are increasing (two consecutive statistically significant monitoring events), then the GMIT will be operated until sample results for any given well continue to decrease. If at the end of the five years, the dissolved phase PCB concentrations in any of the downgradient wells of the GMIT are above the acceptable limits (0.03 ppb), PRS will evaluate if natural attenuation is occurring. If natural attenuation is not occurring, PRS will discuss and negotiate with the agencies on the path forward. If natural attenuation is occurring, PRS will apply for site closure. (Reference the URRD Work Plan Narrative Figure 1 for Decision Tree and further definition of statistically significant monitoring events).

The CWTF will treat and discharge water generated from the remedial and construction activities of Phase I. The current system includes a primary clarifier, multimedia filter, granular activated carbon, and final clarifier. Operation and maintenance of the CWTF during the Phase I activities will the responsibility of the remediation contractor, Petro. Prior to commencement of any long term, on-site wastewater treatment due to the operation of the GMIT, the system will be evaluated by PRS and modifications made as necessary. The long term operation and maintenance requirements will be coordinated by PRS in accordance to the Operation & Maintenance Plan (OMP) and the Long Term Monitoring and Operation Plan (MOP). The treated water will be discharged to the Sheboygan River in accordance to the WMP.

URS will provide direction as determined by the Project Coordinator for performing any required drawdown tests for the GMIT.

Note: All groundwater sampling will be performed in accordance to the QAPP, *Field Sampling Plan* (FSP) and *Verification Sampling Plan* (VSP).

3.4 Plant Site and Source Soil Excavation

Petro will excavate, remove, transport and dispose of PCB-impacted soils from three general locations at the Plant Site as shown on the Phase I Design Drawings. Excavation, transport and disposal will be in accordance to the SMP and Phase I Drawings and Specifications.

The locations for remediation are identified as:

- Plant Site Source Soils
- Riverbank Soils,
- Preferential Pathways Soils

The soil excavation activity includes:

- General earthwork (Reference Specification Section 02220),
- Groundwater and storm water control (Reference Specification Section 02270, WMP, & SWP3)

- Erosion and sediment control (Reference Specification Section 02270, WMP, & SWP3)

Plant Site surface soil (0 to 1-foot bgs) in source areas upgradient of the GMIT will be sampled for PCBs from selected 50-foot grids per the FSP and VSP. Surface soil areas where the concentration of PCBs exceeds 1 ppm will be removed and replaced with clean fill material.

The riverbank soil is defined as the area extending from the annual average surface water elevation of the river to the top of the flood control berm as shown on the Phase I Design Drawings. The surface soil (0 to 1-foot bgs or 0 to 1-foot into sloped riverbank) that exceeds 1 ppm (concentration of PCBs) will be removed. The subsurface soils (below 1-foot or below 1-foot into sloped riverbank and above the water table) that exceed 10 ppm (concentration of PCBs) will be removed. All excavated areas will be backfilled to grade using clean fill material. Initial field and verification sampling to identify PCB levels and to confirm completion of the remedy will be in accordance to the FSP and VSP.

The preferential pathways between the GMIT and the river will be excavated the length of the pipe run in a cross-sectional area of 3 feet wide by 3 feet below bottom of pipe. Visibly stained soils encountered during trenching activities will also be removed between the GMIT and the building as directed by the Project Coordinator (or designee). Bentonite plugs will be placed around the pipes, replacing the bedding material adjacent to the property side of the trench as described in the Phase I Remedial Design. Bentonite plugs will also be placed around pipes on the river side of the GMIT that are to remain operational.

3.5 Transportation and Disposal of Hazardous Material (PCB > 50 ppm)

Petro will be responsible for the loading, transportation and disposal of PCB impacted soil in accordance with Specification Section 13285 and SMP. PCB-impacted soil above 50 ppm shall be treated as hazardous soil. URS (or designee) will prepare and sign the proper paperwork for loading, transporting and disposing of the impacted material.

3.6 Transportation and Disposal of Non-Hazardous Material (PCB < 50 ppm)

Petro will be responsible for the loading, transportation and disposal of PCB impacted soil in accordance with Specification Section 13285 and SMP. PCB-impacted soil below 50 ppm shall be treated as non-hazardous soil. URS (or designee) will prepare and sign the proper paperwork for loading, transporting and disposing of the impacted material.

3.7 Compliance Verification

URS (or PRS designee) shall perform the compliance verification activity associated with the Phase I Remedial Action. This activity includes the installation, development, and slug testing of newly installed groundwater monitoring wells and the collection of verification samples from areas of PCB impacted material removals. Also included in this activity is the proper management of the collected water, soil cuttings, and other

disposables. Compliance verification shall be in accordance to the QAPP, CQAP, FSP and VSP.

Approximately ten (10) rounds of groundwater sampling events will be performed over the course of 5 years on a semi-annual basis, as determined by PRS. Each groundwater sampling event will include existing and/or newly installed groundwater monitoring wells downgradient of the GMIT. URS will provide direction and supervision for the sampling events. URS will also ensure that the compliance verification activities are performed in accordance with the appropriate plans, standard operating procedures and specifications.

Approximately 125 soil samples will be collected and analyzed from the Phase I source areas following remedial activities to verify that each remediated area is in compliance with the established action levels specified in the Upper River Remedial Design and this Work Plan. The sampling will be performed in accordance with the QAPP and FSP. PRS shall designate the Sampling Contractor. URS shall provide direction and supervision to the Sampling Contractor performing the sampling events and will insure that the compliance verification activities are performed in accordance with the appropriate plans, standard operating procedures and specifications.

3.8 Restoration of Site

Upon completion of the excavation and/or removal activities, Petro shall restore the site to before-remediation and construction condition. Restoration of the site shall be in accordance to the Design Drawings and PCB-Impacted Soil Management Plan, and will include:

- Replacing excavated soil (Reference Specifications Sections 02220 and 02221);
- Reconstruction of the berm (Reference Specifications Sections 02220 and 02221);
- Placement of rip rap at the outfalls of each preferential pathway (Reference Specification Section 02271);
- Replacement of turf and vegetation (Reference Specification Section 02921);
- Erosion and sediment control during restoration activities (Reference Specification Section 02270, WMP, SWP3); and,
- Removal of temporary fencing, and sediment and erosion controls (Reference Specification Section 02270).

If required, asphalt and stone base repair of disturbed areas shall be performed by Petro in accordance with the local requirements.

As directed by PRS, and prior to demobilization, Petro will clear the site of all construction debris and temporary facilities, remove temporary security fencing and sediment devices, and install permanent sediment/erosion controls.

4.0 MEASURABLE QUANTITIES

In general, the Phase I RAWP is required to establish performance and work parameters. The estimated Measurable Quantities for the definable features of work included in this phase of the Remedial Action are based on the following:

- Contractor Submittals;
- Mobilization;
- Construction of the 950 foot-long GMIT and associated activities;
- Removal of an estimated 2,100 cubic yards PCB impacted river bank soils above 1 ppm (at the surface) and 10 ppm (subsurface) along the source area located between the GMIT and the river. Removal of an estimated 1,120 cubic yards of impacted soil containing PCB concentrations above 10 ppm during the installation of the GMIT. Removal of an estimated 540 cubic yards of PCB impacted material associated with preferential pathways. Removal of an estimated 1,200 cubic yards of PCB impacted material from source areas upgradient of the GMIT;
- Loading, transportation, and disposal of approximately 1,425 tons of hazardous, PCB-impacted soil;
- Loading, transportation, and disposal of approximately 6,015 tons of non-hazardous, PCB-impacted soil and other material;
- Compliance verification activities; and,
- Restoration of the site, including replacement of approximately 4,960 cubic yards of clean (non PCB-impacted) fill, reconstruction of the flood berm, seeding, repair of asphalt, fencing, and closeout and cleanup activities.

The above quantities are estimated. Actual removed and replacement quantities may vary depending upon actual field conditions and PCB concentrations.

5.0 EQUIPMENT DECONTAMINATION

Equipment used during the Phase I remediation activities will be cleaned and decontaminated by Petro prior to leaving the site in accordance to Design Specification Section 13285, the *Health and Safety Plan* (HSAP) and FSP.

6.0 CONTINGENCY PLAN

The URRD *Contingency Plan* (CP) is designed and written to protect the local community in the unlikely event of a waste spill, accident or emergency that could occur in conjunction with sampling or remediation activities. The CP describes the required actions project personnel must take to respond to emergencies and unplanned releases of contaminated or hazardous constituents.

The scope of the plan includes the following:

- General project information
- Entity responsible for responding in the event of an emergency incident
- Plan for meeting with local, state and federal agencies
- First aid and medical information
- Spill control and countermeasures plan
- Emergency response organization

Each Project Team member will follow the requirements and guidelines set forth in the CP during the execution of the work.

7.0 PROJECT COMPLETION

Upon completion of Phase I remediation and construction activities, PRS shall notify the USEPA for the purposes of conducting a pre-completion inspection in accordance to the CD, URSOW and QAPP. The pre-completion inspection shall consist of a walk-through inspection of the Phase I work areas with, at minimum, USEPA and PRS representatives. The inspection will determine whether the Phase I portion of the work is complete and consistent with the Consent Decree and contract documents. The USEPA will identify, in writing, any deficient or outstanding construction or remediation items discovered and noted during the inspection as set forth in the CD Section XIII.

Following the completion of the outstanding items, PRS will again notify the USEPA for the purpose of conducting a final inspection. The pre-construction inspection shall be used as a checklist with the final inspection focused on the outstanding construction items.

ATTACHMENT A

PHASE I DOCUMENT LIST

PHASE I DOCUMENT LIST

1. **Phase I 100% Upper River Remedial Design Work Plan Narrative**

2. **Phase I 100% Upper River Remedial Design Narrative**

3. **Phase I 100% Upper River Remedial Action Drawings**
   - Drawing 1 – Title Sheet
   - Drawing 2 – Groundwater Monitoring/Interceptor Trench
   - Drawing 3 – Detail Sheet
   - Drawing 4 – GMIT Profile
   - Drawing 5 – Source Control Removal Areas
   - Drawing 6 – Preferential Pathways
   - Drawing 7 – Impacted River Bank Soil Areas
   - Drawing 8 – Facilities Drawing
   - Drawing 9 – Erosion Control Details

4. **Phase I 100% Upper River Remedial Action Specifications**
   - Section 01050 – Construction Staking
   - Section 01055 – Supervising Contractor's Status
   - Section 01110 – Summary of Work
   - Section 01155 – On-Site Safety and Health
   - Section 01200 – Project Meetings
   - Section 01300 – Submittals
   - Section 01355 – General Environmental Protection
   - Section 01356 – Stormwater Pollution Prevention Measures
   - Section 01451 – Contractor Quality Control
   - Section 01500 – Temporary Construction Facilities & Utilities
   - Section 01600 – Material and Equipment
   - Section 01720 – Project Record Documents
   - Section 01770 – Closeout and Cleanup Procedures
   - Section 02100 – Site Preparation
   - Section 02220 – General Earthwork
   - Section 02221 – Trenching, Backfilling, and Compacting
   - Section 02230 – Site Clearing and Grubbing
   - Section 02270 – Erosion and Sediment Control
   - Section 02271 – Rip Rap
   - Section 02373 – Separation/Filtration Geotextiles
   - Section 02532 – Force Mains and Inverted Siphons; Sewer
   - Section 02619 – Corrugated Polyethylene Pipe
   - Section 02921 – Seeding
   - Section 13285 – Removal and Disposal of PCB Impacted Soils
   - Section 16302 – Underground Transmission and Distribution

PHASE I DOCUMENT LIST
(Continued)

5. **Phase I 100% Upper River Remedial Action Plans**
   - Site Specific Health and Safety Plan (HSAP)
   - Quality Assurance Project Plan (QAPP)
   - Construction Quality Assurance Plan (CQAP)
   - Contractor Quality Control Plan (CQCP)
   - Field Sampling Plan (FSP)
   - Verification Sampling Plan (VSP)
   - Operation & Maintenance Plan (OMP)
   - PCB Impacted Soil Management Plan (SMP)
   - Water Management Plan (WMP)
   - Contingency Plan (CP)
   - Mitigation Plan (MP)
   - Long Term Monitoring and Operations Plan (MOP)

6. **Other Contractor Submitted Documents and Plans (Petro Environmental Technologies, Inc.)**
   - Stormwater Pollution Prevention Plan (SWP3)