AMENDMENT 1

WYANDOTTE DESIGN

PCB TREATMENT, INC.
WYANDOTTE STREET BUILDING REMOVAL ACTION
2100 WYANDOTTE STREET
KANSAS CITY, MISSOURI

OCTOBER 2004

PROJECT NUMBER
26708

BURNS & MCDONNELL ENGINEERING COMPANY
ENGINEERS – ARCHITECTS – CONSULTANTS
KANSAS CITY, MISSOURI

AMENDMENT 1

WYANDOTTE DESIGN

The Final Design for the PCB Treatment, Inc. (PTI) Site located at 2100 Wyandotte Street in Kansas City, Missouri (Site) was prepared by Burns & McDonnell Engineering Co., Inc. (Burns & McDonnell) in April, 2004 to fulfill obligations of the Administrative Order on Consent (AOC) (DOCKET NO. 07-2002-0128) between the PTI Steering Committee (Respondents) and the United States Environmental Protection Agency (USEPA). Amendment 1 to the Wyandotte Final Design is being provided at this time, just prior to anticipated start of Removal Action (RA) fieldwork, to incorporate the following:

- Responses to additional comments received in June, 2004 from the Missouri Department of Natural Resources (MDNR) on the Final Design document
- Revised Construction Quality Assurance Plan (Hard Hat Services, Inc.)
- RA Contractor's Contingency Plan (Cleveland Wrecking Company)
- RA Contractor's Schedule (Cleveland Wrecking Company)
- RA Contractor's RA Procedures (Cleveland Wrecking Company)

Except for the incorporation of MDNR comments, all other components of Amendment 1 are either RA Contractor or Supervising Contractor work products that have already been reviewed and approved by USEPA and/or the Quality Assurance Official (QAO). As a result, the RA Designer assumes no responsibility for their accuracy. The RA Designer is, however, compiling this information for submittal to USEPA as an amendment to the Wyandotte Design in order to fulfill the AOC requirements.

Entities and personnel to be involved in implementation of the RA are cited throughout the April, 2004 Final Wyandotte Design document, including but not limited to the following references:

- Organization Chart in Subsection 1.2 of the main document

- City of Kansas City, State, and USEPA contacts in Section 9.0 of the main document
- USEPA and State contacts in Section 10.0 of the main document
- Entities and personnel in Section 12.0 of the main document
- Entities and personnel in Attachment 3 – Construction Quality Assurance Plan
- Entities and personnel in Attachment 5 – Health and Safety Plan and Contingency Plan
- Routes and personnel regarding emergency contacts for off-Site transport in Section 2.0 of Attachment 8 – Logistics Plan
- City contacts and City officials in Section 4.0 of Attachment 8 – Logistics Plan

With the passing of time since April, 2004, knowledge has been acquired that identifies new entities/personnel and updates existing information with current contact personnel and phone numbers. All this current information, as required by the Wyandotte Design Document, shall be kept current and posted at the jobsite project management office throughout the life of the Removal Action. No future design document amendments will be issued for future changes in personnel/contacts.

There are several RA Contractor submittal requirements cited in the Wyandotte Design document that may or may not be subject to USEPA approval. None of these submittal requirements are anticipated to constitute a future amendment to the Wyandotte Design document. In addition, it was confirmed in separate correspondence between USEPA and the PCB Treatment, Inc. Project Coordinator that all regulatory comments on the Wyandotte Design have been received, and that no future design document amendments will be issued to address comments.

Amendment 1 references the April, 2004 final version of the Wyandotte Design which shall be modified as tabulated below:

Item	Reference	Design Document Change or Amendment
1.	Design Document Text, Page 9-4, First Sentence	Delete "Kansas City, Mo" and replace with "Kansas City, MO."
2.	Design Document Text, Section 10.0, Page 10-1, Last Paragraph	No Design Document change. Add Missouri's Spill Line at (573) 624-2436 to contact list posted at jobsite.
3.	Attachment 3 – Construction Quality Assurance Plan (CQAP)	Replace CQAP in its entirety with copy included with this Amendment 1. This change also deletes the Appendix B Distribution List and thus its inaccuracies noted by Candice McGhee of the Missouri Department of Natural Resources.
4.	Attachment 5 – Health & Safety Plan and Contingency Plan for RA Implementation	Supplement existing Attachment 5 documents with Cleveland Wrecking Company Contingency Plan documents included with this Amendment 1.
5.	Attachment 8 – Logistics Plan (LP)	No Design Document change. Add Missouri's Spill Line at (573) 624-2436 to contact list posted at jobsite.
6.	Attachment 9 – Construction Schedule	Replace existing Attachment 9 schedule with Cleveland Wrecking Company schedule included with this Amendment 1.
7.	Attachment 11 – Structural Analysis	Supplement existing Attachment 11 documents with Cleveland Wrecking Company "Final RA Work Procedures" document included with this Amendment 1.

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REVISED CONSTRUCTION QUALITY ASSURANCE PLAN (CQAP)
Hard Hat Services, Inc.

CONSTRUCTION QUALITY ASSURANCE PLAN

PCB TREATMENT, INC.
WYANDOTTE STREET BUILDING REMOVAL ACTION
2100 WYANDOTTE STREET
KANSAS CITY, MISSOURI

SEPTEMBER 2004

Prepared by:
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Engineering, Construction and Management Solutions

PREFACE

This Draft Final Construction Quality Assurance Plan (CQAP) presents the structure for construction quality assurance (QA) and quality control (QC) during the construction phase of the Removal Action (RA) at the PCB Treatment, Inc. Site located at 2100 Wyandotte Street, Kansas City, Missouri. This CQAP has been prepared to fulfill the requirements of the Statement of Work (SOW) included as Appendix 5 to the Administrative Order on Consent (AOC) DOCKET NO. 07-2002-0128. This document is intended to be used in conjunction with the Wyandotte Design (Burns & McDonnell – 2003).

This CQAP documents and emphasizes the required construction quality control process to be undertaken during the RA. This CQAP also provides guidance for the activities to be implemented by the Supervising Contractor, the Quality Assurance Officer, the RA Contractor, and their subcontractors to ensure quality at every phase as set forth in the Design.

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LIST OF APPENDIXES

LIST OF ACRONYMS

AOC	Administrative Order on Consent
CCR	Construction Completion Report
CQA	Construction Quality Assurance
CQC	Construction Quality Control
CQAP	Construction Quality Assurance Plan
DSR	Daily Site Report
EDD	Electronic Data Deliverables
FSP	Field Sampling Plan
HHSI	Hard Hat Services, Inc.
HSP	Health and Safety Plan
MDNR	Missouri Department of Natural Resources
QA	Quality Assurance
QAO	Quality Assurance Official
QAPP	Quality Assurance Project Plan
QC	Quality Control
RA	Removal Action
RFB	Request for Bid
RWP	Removal Work Plan
SAP	Sampling and Analysis Plan
SOW	Statement of Work
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
WBS	Work Breakdown Structure

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1.0 INTRODUCTION

This project-specific Construction Quality Assurance Plan (CQAP) has been prepared to fulfill the requirements of the Statement of Work (SOW) included as Appendix 5 to Administrative Order on Consent (AOC) DOCKET NO. 07-2002-0128. Implementation of this CQAP by the designated Quality Assurance Official (QAO) will fulfill the construction requirements for completion of the PCB Treatment, Inc. Removal Action (RA) at 2100 Wyandotte Street, Kansas City, Missouri. Detailed quality assurance requirements for environmental monitoring and chemical sampling analysis are addressed in the Quality Assurance Project Plan (QAPP) and the Dust Control and Air Monitoring Plan. Therefore, the QAO will use all of these documents to implement the overall quality assurance program.

The Construction Quality Assurance (CQA) Program goal is to demonstrate that the RA is performed in accordance with the AOC, Removal Work Plan (RWP) documents, and RA Design documents. The purpose of formalizing the CQA Program in this CQAP is to establish and communicate the quality performance expectations to all RA project team members. Since this document is intended to be used as a guide for the QAO to monitor the RA Contractor's quality control efforts, it also identifies required elements to be included in the RA Contractor's own quality control program.

CQA is a vital component of all RA activities. The responsibility for performing quality work resides with the RA Contractor and with each subcontracted team member who performs the work. The RA Contractor must regard compliance with an effective CQA Program as a cascading responsibility, starting with its project management, to technical and administrative support staff, and including all subcontracted project team members. The QAO will operate independently from the RA Contractor, to verify that all of the requirements, including design criteria, plans and specifications, are met.

1.1 CQAP Presentation

This CQAP is presented in the following sections:

- This section, Section 1, presents the purpose and outline of the CQAP;
- Section 2 presents the project scope for RA activities;
- Section 3 identifies the responsibility and authority of key personnel involved in the RA;
- Section 4 describes the quality assurance measures to be conducted prior to dismantlement;
- Section 5 presents the quality assurance activities to be conducted during the dismantlement phase;

- Section 6 describes the post-construction phase quality assurance activities to be executed following substantial completion of the RA;
- Section 7 presents the administrative procedures that will be followed throughout the project; and
- Section 8 presents the references utilized in this CQAP.

* * * * *

2.0 PROJECT SCOPE

2.1 Project Scope

The scope of work for this RA project consists of project planning, Site mobilization, access restrictions, environmental hazard abatement, building dismantlement, transportation and disposal of waste, soil excavation, Site restoration, and documentation of RA activities at the Wyandotte Site. Controlled dismantlement of the building, excavation of contaminated soil, and off-Site disposal of debris and contaminated soil has been selected as the preferred remedy for the RA. The Respondents' overall objective is to design and implement the RA in a way that will meet the performance standards and specifications set forth in the Action Memorandum and SOW. Performance objectives for the project include cleanup standards, standards of control, and quality criteria. Other substantive requirements, criteria or limitations are set forth in the Action Memorandum as well as chemical-specific and action-specific regulations for the Site.

Quality Assurance for the RA will be provided on multiple levels. RA planning will include a Project Schedule, Work Plans, Health and Safety Plans, Dust Control and Air Monitoring Plan, Construction Quality Assurance Plan (this document), and Field Sampling Plan. Conformance with RA work plans and design specifications will be verified using construction oversight and inspections. Bidders will be screened to ensure only qualified contractors and subcontractors perform work as part of the RA. Clean-up objectives will be verified as having been met through sampling and testing. RA work performed will be documented and reported as specified in the Administrative Order on Consent (AOC).

2.2 Project Schedule

The currently anticipated project schedule may be found in Attachment 9 of the Wyandotte Design document.

2.3 Project Organization

The personnel primarily responsible for the execution of construction management and CQA for Site activities and a description of their general roles are presented and illustrated in Section 1.1 in the RWP. However, a more detailed description of the responsibilities, qualifications, and authority of key positions for this delivery order are presented in Section 3.0 and Figure 3-1 of this CQAP.

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3.0 RESPONSIBILITY AND AUTHORITY

The overall management strategy for this project has been developed around the Respondents' desire to implement current and future work phase cost-effectively, timely and safely, and to achieve the quality assurance necessary to ensure that the completed project meets or exceeds all design criteria, plans, and specifications. The Respondents listed in the AOC are responsible for implementation of the RA. Those individuals retained by the Respondents to implement the RA, including the QA functions, are described herein.

In addition to the Respondents as listed in Appendix 1 of the AOC, the SOW defines the following entities required for RA implementation.

- United States Environmental Protection Agency (USEPA)
- Project Coordinator
- Supervising Contractor
- Quality Assurance Official
- RA Contractor
- Removal Designer

Responsibilities and authority of key positions are presented below. Figure 3-1 presents the individuals and companies appointed/designated to each of the project positions.

3.1 USEPA

USEPA Region VII will be the governing regulatory agency for the RA. The USEPA has approval authority for plans and specifications, processes, and other submittals necessary to carry out the RA at Wyandotte. The USEPA Project Manager is Mr. Robert Feild.

3.2 Project Coordinator

Definition: The Project Coordinator is designated by the Respondents as the main liaison with USEPA, and is responsible for administration of all actions by the Respondents required by the AOC. The Project Coordinator carries out the overall coordination and management of all RA activities, and acts as the primary person responsible for communication between the parties.

Responsibility and Authority: The Project Coordinator will be responsible for coordinating all RA activities between the Supervising Contractor, the Removal Designer, the Quality Assurance Official, and the RA Contractor and subcontractors. The Project Coordinator will also be responsible for ensuring that the RA components are completed in accordance with the Design documents and SOW. The Project Coordinator has the authority to act on behalf of the Respondents and make decisions regarding RA activities.

Qualifications: Mr. Robert C. Beck of Aquila, Inc., as a member of the Respondents, will serve as the Project Coordinator. Mr. Beck has experience with CERCLA sites, and is familiar with the requirements of the AOC and SOW. Mr. Beck has been integral in many environmental remediation projects and investigations, and is familiar with the environmental regulations and requirements necessary to successfully implement the RA.

Submittals: The Project Coordinator will be responsible for issuing Monthly reports as per the AOC paragraph 35 and the SOW Section VI, Task 4, Part D. The Project Coordinator will also be responsible for issuing the RA Final Report as per the AOC paragraph 36 and the SOW Section VI, Task 4, Part D.

3.3 Supervising Contractor

Definition: The Supervising Contractor is a Design Professional with experience in the response technologies selected for the RA.

Responsibility and Authority: The Supervising Contractor has the responsibility to act as the on-Site construction manager for the Respondents. The Supervising Contractor will report directly to, and will take direction from, the Project Coordinator. Oversight of RA activities, inspection of Contractors or subcontractors, review and approval of RA Contractor activities, and corresponding with the RA project team are all responsibilities of the Supervising Contractor. The authority vested in the Supervising Contractor via the contract with the Respondents allows the Supervising Contractor to actively manage the RA activities necessary to fulfill the AOC requirements.

Qualifications: Hard Hat Services, Inc. (HHSI) will serve as the Supervising Contractor. HHSI has the experience necessary with CERCLA Removal Actions and dismantling of industrial facilities to successfully manage the RA activities. HHSI has assembled numerous plans and specifications, contract documents and management plans for large-scale environmental projects. They have sufficient technical

and support staff to execute the project and provide the Respondents with the business and financial experience necessary throughout the life of the project.

Submittals: The Supervising Contractor will be responsible for submitting daily reports to the Project Coordinator and USEPA. The Supervising Contractor will prepare the monthly reports and the RA Final Report for the Project Coordinator. In addition, the Supervising Contractor will be responsible for generating RFBs, manifest tracking, submitting approved invoices, reviewing requests for payment, issuing clarifications, responding to requests for information, and preparing requests for disbursement on behalf of the Project Coordinator prior to USEPA submittal.

3.4 Quality Assurance Official

Definition: The Quality Assurance Official (QAO) provides oversight and confirmation/assurance to the Respondents and USEPA that the RA is being conducted in a way that meets project requirements. The QAO is required to be "independent" and autonomous from the RA Contractor.

Responsibility and Authority: The QAO has the responsibility to implement the CQAP and the QAPP by selectively testing and inspecting the work of the RA Contractor. The QAO will be the individual responsible for assuring overall conformance with the project requirements, and documentation of such conformance. The QAO will report directly to the Project Coordinator. Authority vested in the QAO is outlined in various sections of the QAPP and this CQAP.

Qualifications: The QAO must be experienced in the Quality Assurance/Quality Control issues of the RWP and design components. The QAO must have previously demonstrated QA/QC ability and have relevant experience. Mr. Richard Baldino of HHSI will serve as the QAO. As a Masters Degree Chemist with specific PCB-related project experience, Mr. Baldino has the experience and knowledge to implement the QAPP and CQAP successfully for the Respondents. As an employee of HHSI, Mr. Baldino will work closely with the Supervising Contractor staff to ensure RA Contractor compliance with all project requirements.

Submittals: The QAO will be responsible for submitting Data Validation reports to the Project Coordinator and USEPA. In addition, the QAO will ensure that all documentation necessary to properly demonstrate compliance is developed and entered into the project file.

3.5 RA Contractor

Definition: The RA Contractor is the party or parties hired by the Respondents to conduct the RA. The RA Contractor is not be the same entity as the QAO or the Supervising Contractor.

Responsibility and Authority: The RA Contractor has the responsibility to implement the approved Design for the Removal Action. The RA Contractor provides the necessary labor, equipment, and materials to complete the job in an efficient manner, in accordance with the requirements of the Design and the AOC. The RA Contractor reports directly to the Supervising Contractor and provides relevant information to the Supervising Contractor for AOC-required reporting and communications. However, the RA Contractor is under contract to the Respondents. The RA Contractor has the authority to implement the RA, including assigning personnel, subcontracting specialty tasks, permitting and permit equivalencies, and coordinating with other Project entities.

Qualifications: The RA Contractor is a bonded construction contractor with experience involving CERCLA removal actions. The RA Contractor has specific experience in Region VII. The RA contractor has the resources and personnel to complete the work elements to meet the project schedule and has completed projects of a similar nature.

Submittals: The RA Contractor is responsible for submitting a Project Schedule, Work Plan, Health and Safety Plan, Dust Control Plan, shop drawings, informational submittals, and Construction Quality Assurance Plan. The RA Contractor will also be responsible for obtaining all required permits for the Site.

3.6 Removal Designer

Definition: The Removal Designer is the consultant hired by the Respondents to design the Removal Action.

Responsibility and Authority: The Removal Designer is responsible for preparing the Removal Work Plan, the Draft and Final Removal Action Design Documents, and many of the required attachments and supplemental plans. The Removal Designer reports directly to the Project Coordinator, and works with the Supervising Contractor to define the work and ensure the AOC requirements are reflected in the Design documents. The Removal Designer has the authority to prepare these documents, and work with the other Project entities to clarify work requirements and issue addenda, as necessary.

Qualifications: The Removal Designer is a licensed engineering professional with experience designing CERCLA removal actions. The Removal Designer has specific experience in Region VII, working with the USEPA and Missouri Department of Natural Resources (MDNR) and Kansas Department of Health and Environment (KDHE). The Removal Designer has the resources to engineer the work and produce documents that define the required work elements to meet the project schedule. Burns & McDonnell Engineering, Inc. is serving as the Removal Designer.

Submittals: The Removal Designer is responsible for preparing the Removal Action Work Plan, the Draft Design, Final Design, Supporting Plans, Design Clarifications, Addenda, Responses to RFIs, etc.

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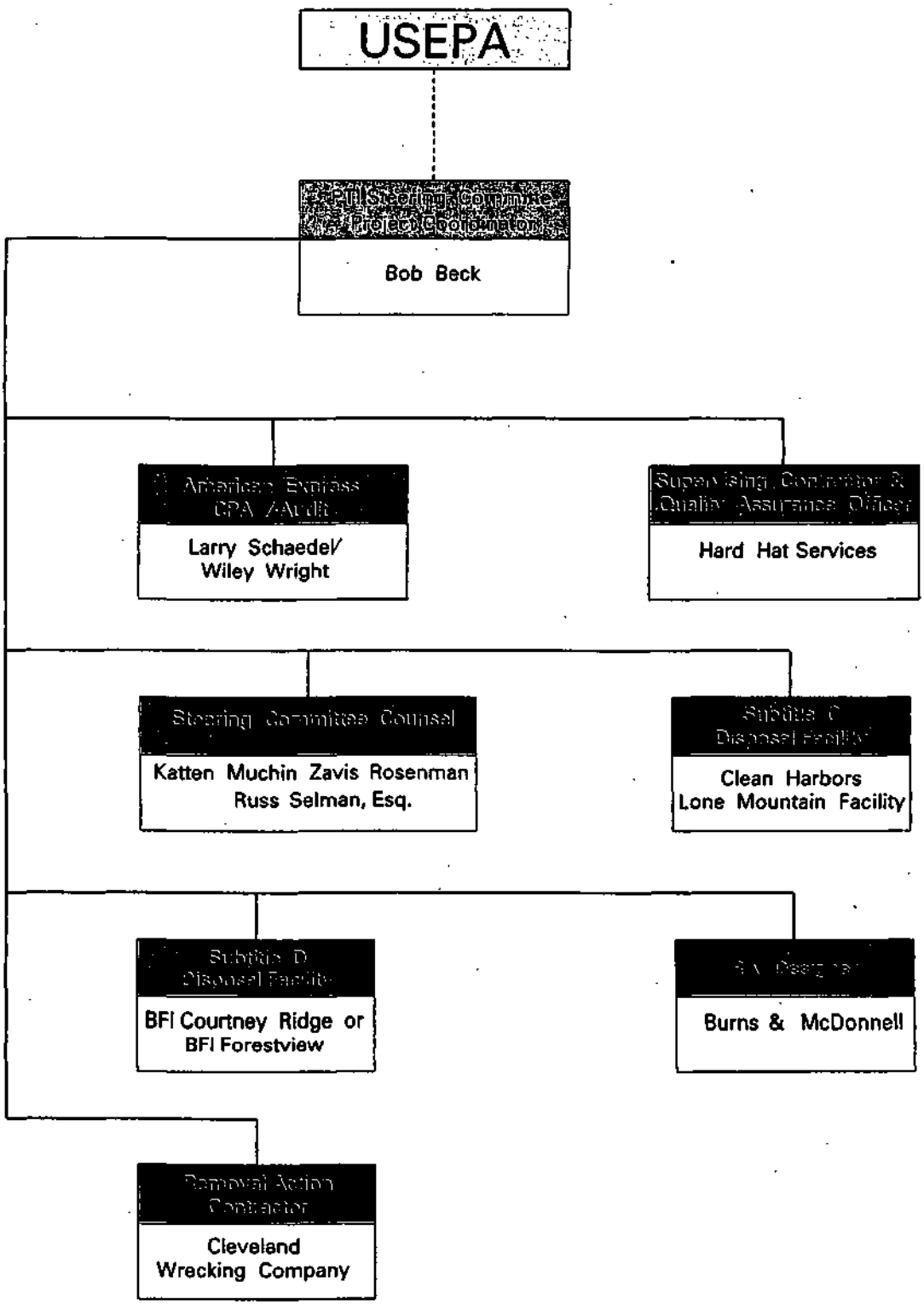
USEPA
PTI Steering Committee
Project Coordination
Bob Beck
American Express
CPA /Audit
Larry Schaedel/
Wiley Wright
Supervising Contractor &
Quality Assurance Officer
Hard Hat Services
Steering Committee Counsel
Katten Muchin Zavis Rosenman
Russ Selman, Esq.
Subtitle C
Disposal Facility
Clean Harbors
Lone Mountain Facility
Subtitle D
Disposal Facility
BFI Courtney Ridge or
BFI Forestview
QA Designer
Burns & McDonnell
Removal Action
Contractor
Cleveland
Wrecking Company

- Documenting that trucks are in good working order and are loaded properly prior to leaving the Site;
- Documenting that trucks and equipment are properly decontaminated, and decontamination water and residuals are properly managed and disposed;
- Documenting that security measures are being followed, including entry by authorized persons only, use of appropriate personal protective equipment (PPE), fencing and safety barricades, and use of locks and other measures to prevent unauthorized entry when the work Site is unmanned.

4.2 Submittals

The following types of submittals will be required from the RA Contractor during the pre-construction phase:

- Health and Safety Plan;
- Permits and permit equivalencies (including, but not limited to, demolition, temporary electric service, hauling, traffic control/street closure, excavation, air monitoring, fire hydrant taps, sewer discharge, asbestos abatement);
- Detailed execution plans;
- Other work plans and submittals as required by the design specifications.

Submittals will be reviewed for completeness and content, and will be either approved, approved with comments, disapproved, or rejected, in accordance with the Specifications.

4.3 Audits

Quality assurance auditing will be performed as part of the overall quality control process during RA implementation activities. Audits will be conducted on entities involved with the RA construction project to ensure that quality control measures are being routinely performed. The audit process will involve the performance of quality assurance checks during the pre-construction and construction phases. The auditor will document all quality assurance observations and immediately report any deficiencies found during the quality assurance audit to the Supervising Contractor. The QAO will maintain a logbook that will consist of the documented quality assurance audits. The following audits will be performed during the pre-construction phase:

- Regulatory compliance of the disposal facilities;
- Submittal completeness audit;
- Permit and Permit equivalency completeness audit;
- Laboratory inspection (for compliance with the QAPP).

4.4 Site Access

The construction activities will be coordinated in advance with the appropriate point of contact for USEPA. The Supervising Contractor will provide notification for all work planned at the Site and identify issues affecting the performance of work at the Wyandotte Site. The Supervising Contractor will provide notification for all work planned outside of normal working hours. Initial Site access will be provided to allow safety barricades to be erected, and Site operations to commence.

The RA Contractor will be responsible for obtaining additional Site access necessary for truck staging and additional facilities. In addition, the RA Contractor will need to provide fencing, signage, traffic flow, a traffic staging plan, and assure Site security measures are in place. The QAO or designated representative will verify that these measures are in place prior to beginning the dismantlement.

4.5 Utility Clearances

Prior to preparing the Site, all utilities on the Site and all those potentially affected by RA implementation activities will be located and marked, with information provided by the applicable utility companies. The RA Contractor will be responsible for verification of active utilities and ultimately for isolating and abandoning each utility in accordance with utility company requirements. The QAO will ensure that this plan is in place prior to implementing the RA activities.

4.6 Waste Characterization

Certain areas within the building at the Wyandotte Site will be assessed for waste characterization purposes to ensure RCRA Hazardous wastes do not exist at the Site. Specific sampling areas are outlined in the Field Sampling Plan. Test methods and procedures are documented in the Project QAPP. This work will likely be completed prior to mobilization of the RA Contractor. Even so, the QAO will ensure that this work has been done and is adequate for waste disposal purposes.

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5.0 CONSTRUCTION PHASE QUALITY ASSURANCE

This section presents the specific construction phase quality assurance activities for the Wyandotte Site. Field activities addressed include inspections, sampling and testing, progress meetings, and documentation.

5.1 Inspections

The QAO, Supervising Contractor and/or designated representative will be on Site during construction activities to confirm that work is performed in accordance with the design documents. In addition to inspecting the day-to-day work, the QAO will also maintain a photographic record to document the building dismantlement procedures. The Supervising Contractor or designated representative will also be responsible for the inspection of trucks entering the Site with fill material as well as trucks exiting the Site with waste materials. The Supervising Contractor will ensure proper residuals management of materials such as dust, solids, and liquid waste.

The QAO and/or designated representative will visually demarcate the limits of the waste, observe the lateral and vertical extent of dismantlement, and supervise the segregation of wastes defined as TSCA and Subtitle D. The QAO will also ensure that the RA Contractor and Subcontractors are complying with all permits and permit equivalencies during dismantlement activities.

5.2 AOC Compliance

The Project Coordinator and the Supervising Contractor will work jointly to mitigate risk of non-compliance with the AOC by developing a strict AOC adherence policy. This policy will include periodic reporting, meeting milestones, submitting required documents, and making required notifications. The key to AOC Compliance Plan is a comprehensive list of AOC requirements, with associated timeframes, that will be tracked along with other schedule-driven milestones. This list will be called the "AOC Tracking Log". The Supervising Contractor/QAO will be responsible for notifying all team members of upcoming AOC required milestones.

Throughout the field effort, the Supervising Contractor/QAO will manage AOC compliance using the following steps:

- Incorporate the AOC/SOW requirements into RA Contractor Scope of Work;
- Addressing the AOC/SOW requirements at progress meetings;
- Reviewing AOC Compliance Plan and associated AOC Tracking log weekly;

- Work period information and weather conditions;
- Personnel employed on-Site;
- Documentation of any visitors to the Site;
- Major equipment used;
- Work accomplished for the day;
- Safety meetings and incident documentation including spills and releases;
- Public Relations issues or events including news media contact and complaints;
- Environmental sampling information including number of samples, locations, and results including dust monitoring;
- Materials/debris shipments including destination, load size, and manifest number; and
- Any other significant events on-Site.

5.7.2 Monthly Progress Reports

Throughout construction, the Supervising Contractor will submit to the Project Coordinator, who will then issue to the USEPA, signed monthly progress reports as defined by the AOC. These progress reports will be submitted by the 15th day of the following month, and will include, as a minimum (and as appropriate):

- A description of the activities performed;
- Summary of work scheduled but not accomplished including reasons for delay and plans to correct;
- Summary of work planned for the following month;
- Summaries of schedule changes and expected delays including plans to handle delays;
- Summary of safety and pollution issues encountered;
- Changes in key personnel during the reporting period;
- Deviations from approved activities;
- Copies of daily reports, inspection reports, laboratory/monitoring data, and data validation reports;
- Reports on any non-manifested waste removed from the Site;

- Summary of Total Suspended Particulate Matter exceedances encountered;
- Total weight of debris shipped off-Site;
- Summaries of conference calls and meetings held during the reporting period;
- Copies of RA Contractor progress reports; and
- AOC Compliance including milestone tracking, work plan implementation, and Agency notifications.

The format of the monthly progress report is included in Appendix B.

5.7.3 Inspection Checklist

Inspection checklists will be completed after each inspection has occurred. Documentation of the inspections will be prepared and issued to all participants in the inspection. These reports will be filed at the Site, and included as attachments with the Monthly Progress Reports. The Inspection Checklist is included as Appendix C.

5.7.4 Data Validation

All laboratory data generated during the RA will be validated by the QAO to ensure data integrity. Data validation reports will be generated and any data integrity issues will be documented. Data validation protocols will be followed as discussed in the Project QAPP. Data validation reports will be submitted as an appendix to the appropriate monthly report (see Section 5.4.2).

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6.0 POST-CONSTRUCTION PHASE QUALITY ASSURANCE

Following substantial completion of the Removal Action, the following tasks will be completed to ensure that the RA met the requirements of the AOC and that proper documentation is in place.

6.1 Inspections

Inspections will be performed on Utility Restoration, Site Restoration, and Demobilization. All inspections will be documented. Some or all of these inspections may be performed concurrently and may also become part of the Pre-Final Inspection.

6.1.1 Utility Restoration

Within fifteen (15) working days after final utility clearance and restoration, a Utility Restoration Inspection will be held at the Site. The Supervising Contractor and RA Contractor/subcontractor will attend the Utility Restoration Inspection. The Utility Restoration Inspection will consist of a walk-through inspection of the entire project area with emphasis on the impacted utilities. The Utility Restoration Inspection will determine whether the impacted utilities have been restored, re-routed, or removed as specified in the RA work plan. Any outstanding construction items noted during the Utility Restoration Inspection will be recorded. A Utility Restoration Inspection report will outline the outstanding construction items, actions required to resolve items, completion dates for these items, and the date for final approval.

6.1.2 Site Restoration

Within fifteen (15) working days after completion of Site restoration, a Site Restoration Inspection will be held at the Site. The Supervising Contractor and RA Contractor/subcontractor will attend the Site Restoration Inspection. The Site Restoration Inspection will consist of a walk-through inspection of the entire project area with emphasis on restoration of the Site for future use. The Site Restoration Inspection will determine whether the project has been completed and has been restored consistent with the contract and technical documents. Any outstanding construction items noted during the Site Restoration Inspection will be recorded. A Site Restoration Inspection report will outline the outstanding construction items, actions required to resolve items, completion dates for these items, and the date for final approval.

6.1.3 Demobilization

Within fifteen (15) working days after completion of all construction activities, a Demobilization Inspection will be held at the Site. The Project Coordinator and RA Contractor/subcontractor will attend the Demobilization Inspection. The Demobilization Inspection will consist of a walk-through inspection

of the entire project area to ensure proper removal of all construction equipment, materials, and residuals. The Demobilization Inspection will determine whether the project has been completed and has been constructed consistent with the contract and technical documents. Any outstanding construction items noted during the Demobilization Inspection will be recorded. A Demobilization Inspection report will outline the outstanding construction items, actions required to resolve items, completion dates for these items, and the date for final approval.

6.2 Meetings

6.2.1 Pre-Final Inspection

Within ten (10) working days after completion of construction, a Pre-final Inspection meeting will be held at the Site. Representatives of the USEPA, MDNR, the Project Coordinator, the Supervising Contractor, the QAO, RA Contractor, and appropriate subcontractors will attend the Pre-final Inspection. The Pre-final Inspection will consist of a walk-through inspection of the entire project area and a records review of the results and resolutions of non-conformances identified by prior inspections. The Pre-final Inspection will determine whether the project has been completed and has been constructed consistent with the contract and technical documents. Any outstanding construction items noted during the Pre-final Inspection will be recorded. A Pre-final Inspection report will outline the outstanding construction items, actions required to resolve items, completion dates for these items, and the proposed date for the Final Inspection.

6.2.2 Final Inspection

Within twenty (20) working days after completion of any outstanding construction items as listed in the Pre-final Inspection report, a Final Inspection meeting will be held at the Site. Representatives of the USEPA, MDNR, the Project Coordinator, the Supervising Contractor, the QAO, RA Contractor, and appropriate subcontractors will attend the Final Inspection. The Final Inspection will consist of a walk-through inspection of the project Site. The Pre-final Inspection report will be used as a checklist, and the Final Inspection will focus on the outstanding construction items. The Final Inspection will confirm that outstanding items have been resolved.

6.3 Documentation

6.3.1 Removal Action Report

Within thirty (30) days of completion of all construction and inspection activities at the Wyandotte Site, a Removal Action Report will be prepared by the Supervising Contractor. The RA Report will document all RA activities as accomplished as well as deviations from the RA Work Plan. The RA Report will

document all quantities and types of materials removed from the Site or handled on-Site and a listing of the final destination of these materials. All analytical data will be summarized in the RA report as well as all relevant RA documentation. The RA report will also summarize the findings of the Final Inspection, any recommendations for future activities, and an RA Report Certification signed by the person directing the RA Report preparation.

6.3.2 Contract Required Documents

The Supervising Contractor or a designated representative will keep a set of record drawings by recording in red pencil any changes or deviations on a separate field office set of plans labeled "Record Drawings-Information Only." Special attention should be given to underground changes that will not be visible after construction is complete.

All changes made during the course of construction will be incorporated into the Computer Aided Drafting/Design (CADD) files to create a set of as-built drawings of the completed project. Corrections to the drawings will be clouded and referenced with a revision triangle designated as "Record Drawing."

* * * * *

- 1.4.2.4 Staging Area / Logistics
- 1.4.2.5 Access Agreements
- 1.4.3 Permits
  - 1.4.3.1 Permit Equivalencies
  - 1.4.3.2 Permit Applications
- 1.4.4 Health & Safety
  - 1.4.4.1 HSP
  - 1.4.4.2 Medical Monitoring
  - 1.4.4.3 Implementation
    - 1.4.4.3.1 Tailgate Safety Meetings
    - 1.4.4.3.2 Near Misses
    - 1.4.4.3.3 Incidents
- 1.4.5 Decontamination
  - 1.4.5.1 TSCA
  - 1.4.5.2 Asbestos
  - 1.4.5.3 Lead
  - 1.4.5.4 Other
- 1.4.6 Dismantling
  - 1.4.6.1 Building
  - 1.4.6.2 Basement
  - 1.4.6.3 Transportation of Debris - Subtitle D
  - 1.4.6.4 Transportation of Debris - TSCA
- 1.4.7 Soil Excavation
  - 1.4.7.1 RR Track Removal
  - 1.4.7.2 Subsurface Soils Excavation
  - 1.4.7.3 Transportation of Soil - Subtitle D
  - 1.4.7.4 Transportation of Soil - TSCA

1.5 Restoration
- 1.5.1 Pavement
- 1.5.2 Sidewalks
- 1.5.3 Regrade Site
- 1.5.4 Seed, Fertilize, Mulch

8.0 REFERENCES

Burns & McDonnell, July 2003, *Wyandotte Removal Work Plan*

PCB Treatment, Inc. – 2100 Wyandotte Street, Kansas City, Missouri, USEPA – Region VII, CERCLA Docket No. 07-2002-0128, *Administrative Order On Consent for Removal Action*

Superfund Site, Kansas City, Missouri and Kansas City, Kansas, USEPA – Region VII

Superfund Site, Kansas City, Missouri and Kansas City, Kansas, USEPA – Region VII,

PCB Treatment, Inc. – 2100 Wyandotte Street, Kansas City, Missouri, USEPA – Region VII, CERCLA Docket No. 07-2002-0128, *Administrative Order On Consent for Removal Action, Appendix 5 Statement of Work for the Removal Actions at the PCB Treatment, Inc.*

* * * * *

APPENDIX A

Daily Site Report

PCBINC DAILY SITE REPORT

Wyandotte Site

To:	USEPA Region VII Bob Field Pauletta France-Isettes	**From:**	
Phone No.:	913-551-9701	**Phone No.:**	
Fax No.:	913-551-9694	**Fax No.:**	

Report Number_____ Day _____ Date _____ Work Period _____ to _____

Weather _____ Temp. _____ Precipitation _____

Wind _____ Humidity _____

Personnel On Site

Company	Title / Position	No.	Hours	Comments

Visitors

Company	Title / Position	No.	Hours	Comments

Major Equipment on Project and Amount of Use

No.	Description	Size	Hours Oper.

Health & Safety Meetings, Inspections, Incidents and Corrective Actions: _____

Work Activities Completed Today: _____

Public Relations, visitors, complaints, media: _____

_____

_____

Environmental Sampling, Types, Number, Locations, Results (includes air and dust monitoring)

_____

_____

_____

_____

Disposal Transportation

Truck #	Manifest Number	Destination	Load Description / Est. Wt./CY

Inspections: _____

_____

_____

_____

_____

_____

Other Significant Events: _____

_____

_____

_____

_____

_____

Signature: _____

APPENDIX B

Monthly Progress Reports

Monthly Progress Report No. X
PCB Treatment Inc. Site
CERCLA Docket No. 07-2002-0128
Reporting Period: XXX 200X

Wyandotte Property

I. Work Accomplished This Period

A. Actions Performed

1. Actions
2. Submittals

B. Problems Encountered and Solutions Implemented

C. Analytical Data Received and Validated

D. Deviations from Approved Activities

E. Quantities Shipped Off-Site

II. Work Scheduled but not Accomplished

III. Work Scheduled for Next Period

IV. Safety and Pollution Issues

A. Issues or Incidences

B. Perimeter Monitoring

APPENDIX C

Inspection Checklists

Pre-Construction Phase Site Preparation			
Construction Item	**Satisfactory/ Unsatisfactory**	**Date/Initials**	**Comments**
Permit and permit equivalency completeness audit			
Submittal completeness audit			
Perimeter Fencing & barricades			
Public Protection & Safety barriers			
Proper Site Security measures in place			
Traffic Routing Signage			
Trailer positioning & anchoring			
DOL & OSHA Job Site Postings & MSDS			
Establishment of exclusion zone			
Establishment of contaminant reduction zone			
Establishment of support zone			
Decontamination procedures			
Establishment of dust control measures			
Establishment of water control measures			
Utility locate			

Pre-Construction Phase Site Preparation			
Construction Item	**Satisfactory/ Unsatisfactory**	**Date/Initials**	**Comments**
Utility relocate & clearances			
Construction Safety Signs			

Action Items:

Pre-Construction Phase Pre-Demo Inspection Checklist			
Construction Item	**Satisfactory/ Unsatisfactory**	**Date/Initials**	**Comments**
Permit and permit equivalency completeness audit			
Submittal completeness audit			
Subcontractor Training Review			
RA scaffolding and shoring is checked for defects			
RA scaffolding and shoring is adequately installed			
RA heavy equipment in good working order, no operating problems			
RA Crane inspections & certifications			
RA equipment checked for residual contamination			
RA Materials adequate for intended use			
RA Materials do not contain foreign or objectionable items			
Sampling equipment calibrated & in good working order			
Perimeter Fencing & barricades			
Public Protection & Safety barriers			
Proper Security measures to prevent unauthorized entry			

Pre-Construction Phase Pre-Demo Inspection Checklist			
Construction Item	**Satisfactory/ Unsatisfactory**	**Date/Initials**	**Comments**
Utility clearances			
Bulk waste material removal			
Pigeon Waste removal			
Asbestos removal			
TSCA demarcation			

Action Items:

Construction Phase Inspection Checklist			
Construction Item	**Satisfactory/ Unsatisfactory**	**Date/Initials**	**Comments**
Trucks in good working order and properly loaded			
Trucks are properly decontaminated			
Proper handling of decontamination water and residuals			
Site security measures are being followed			
Use of appropriate PPE			
Truck inspection of fill material			
Truck inspection of waste material			
TSCA/Subtitle D segregation			
Transportation routes			
Implementation of dust control measures			
Implementation of water control measures			
Residuals management			
General housekeeping			
Excavation/soil handling			
Site restoration			

Construction Phase Inspection Checklist			
Construction Item	**Satisfactory/ Unsatisfactory**	**Date/Initials**	**Comments**
Sampling activities			
Daily Site Report completion			
Monthly Progress Report completion			
Data Validation Report completion			

Action Items:

Post-Construction Phase			
Construction Item	**Satisfactory/ Unsatisfactory**	**Date/Initials**	**Comments**
Utility Restoration			
Site restoration			
Demobilization			
Pre-final inspection			
Final inspection			
Removal action report			
Project files/records management			

Action Items:

SUPPLEMENTAL CONTINGENCY PLAN INFORMATION
Cleveland Wrecking Company

Contingency Plan

Emergency Coordinator (EC) for the Project:

Jim Norris
Project Manager / Site Health and Safety Officer
Location: 2100 Wyandotte
Kansas City, MO 64108
Jobsite Phone: To Follow
Cell Phone: 605-209-0710

First Aid Medical Info

Truman Medical Center
2301 Holmes Street
Kansas City, MO 64108-2677
816-404-1000
www.trumanmed.org
Med Provider Number 260048
General Medical and Surgical Care (adult)
Obstetric Care
Emergency Dept.
Hospital-based outpatient care

Air Monitoring Plan

Exposure Monitoring:

a. In the event of a spill, CWC will perform monitoring to accurately determine the airborne concentrations to which employees or public may be exposed. Monitoring will be conducted using a portable pump designed for this type of sampling activity. Sampling media shall include a 25mm cassette equipped with and 8 micron mixed cellulose ester filter. Primary method of laboratory analysis will be NIOSH Method 7400 – Phase Contrast Microscopy.

b. Determinations of employee or public exposure are made from breathing zone air samples that are representative of the 8-hour TWA & STEL for the affected spill environment. Samples shall be taken "down-wind" of the incident area.

c. Representative 8-hour TWA & STEL employee exposure is to be determined on the basis of one or more samples representing full-shift exposure for employees in the spill area. Sampling procedures will be conducted by the project supervisor working under the direction of a State of Missouri Department of Natural Resources certified Air Sampling Professional.

Termination of Monitoring:

a. If the periodic monitoring required by paragraph (f)(3) of OSHA 1926.58 reveals that employee or public exposures, as indicated by statistically reliable measurements, are below the action level, CWC may discontinue monitoring. This determination is made on a case-by-case basis which considers such factors as project location/site conditions, engineering control measures, environmental risks, etc.

Spill Contingency Plan

Spill Contingency Plan – On-Road Spill

PROCEDURES:

In the event of an on-the-road spill or other emergency, the driver will follow these procedures:

1. Assess the situation.
2. Remain with the unit and warn all pedestrians and motorists to stay away from the spill area. Point out to them the danger involved.
3. Radio or call the office as soon as safely possible to inform the Emergency Coordinator (EC). The EC will contact the appropriate authorities and the Haz Mat 24-hour emergency number if this has not already been done.
4. The EC will gather the following information from the driver and relay it to the National Response Center and the Department of Public Safety, if applicable;
   a. name of person reporting the incident;
   b. phone number where person reporting can be reached, if possible;
   c. date, time, and location of the incident;
   d. the extent of injuries, if any;
   e. classification, name, and quantity of hazardous materials/waste involved, if such information is available;
   f. type of incident and nature of hazardous material/waste involvement and whether a continuing danger exists at the scene;
   g. for each waste product involved provide;
      i. name and ID number of generator;
      ii. product shipping, hazardous class, and "UN" or "NA" number;
      iii. estimated quantity of material spilled;
      iv. if possible, the extent of contamination to land, water, or air; and
      v. shipping name, hazard class, and ID number of any other material carried.

5. The driver may not leave the scene until the proper authorities arrive to protect the area and the driver has received approval from dispatch to leave the scene.
6. The EC will contact the appropriate agency listed below and will provide with the above information and Cleveland Wrecking Company's address and transporter information.

Emergency Response Agencies

US National Response Center	(800) 424-8802
US Coast Guard, Washington D.C.	(800) 426-2675
Chemtrec	(800) 424-9300
Hazardous Materials/waste Incident	(800) 843-0699
Info Track:	(800)-535-5053

ON-SITE ACTIONS TO BE TAKEN:

Containment

1 The critical problem is to prevent the escape of any applied liquid or solid into the ground or into a storm drain or sanitary sewer. A barrier must be erected immediately to prevent escape of spilled materials/waste liquids, using whatever material is at hand (even a dirt curb may prevent spreading of the spill). Containment of solids will be dependent on wind and weather conditions. Use the tarpaulin in the vehicle (or other plastic sheeting) if conditions are wet and windy.

2 Simultaneously, the source of the spill or leak must be located and controlled (e.g., A drum plugged, taped, or turned upside down).

3 The possibility of evacuation should be considered in the event of a major spill (e.g., a collision with another vehicle or a loaded trailer that has turned over, with subsequent container(s) rupturing). Major concerns involve ignitable wastes that may catch fire and/or explode or may generate toxic fumes. The driver should refer to their *Emergency Response Guidebook* for all evacuation, isolation, and initial emergency spill procedures.

Cleanup

1. With containment effected and the spillage source controlled, cleanup is the next step. If the spill is contained on an impervious paved surface, material should be absorbed onto a compatible material (e.g., sand, diatomaceous earth, etc.). Any 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 the spillage has reached soil, all contaminated dirt will be collected into drums or bags for proper disposal at an EPA approved site.
2. If any spilled waste has reached the ground, the contaminated soil will be removed. The extent of contamination will be determined by sampling the spill area and analyzed by a qualified laboratory. Sampling techniques, chain-of custody requirements, and analytical methods will follow approved procedures such as those outlined in SW-846. Any soil exhibiting contamination above the local background level will be removed and disposed of at an appropriate permitted disposal site.
3. Special recovery drums (oversized metal drums) will be used for containing damaged 55-gallon drums in addition to contaminated absorbents, dirt, or material noted above. Disposal will be at an approved site.

FOLLOW UP PROCEDURES:

Two steps remain once the immediate emergency aspects of a spill have been taken care of:

Decontamination

1 A Truck or trailer exposed to a spill or leak will be decontaminated at the site in order to prevent any further release. To the extent that it can be transported or moved under its own power, it will be taken to an authorized facility capable of further decontamination, if necessary.

2 Equipment will be decontaminated in the following manner:

a. Each item used will be placed in an open head container and thoroughly rinsed with a compatible solvent or cleaning compound. The residual wash water will then be drained into a tight head container, sealed, and disposed of in accordance with federal and state regulations at an authorized disposal site.

b. Contaminated clothing will be placed with the cleanup residue and disposed of in accordance with federal and state regulations at an authorized disposal site. If clothing is reusable, then it will be decontaminated properly and the residue added to the other waste.

INCIDENT REPORTS:

1 Each carrier who transports hazardous materials must give notice after an incident that occurs during transportation, including loading, unloading, and temporary storage, in which as a direct result of hazardous materials:

i. A person is killed or hospitalized or
ii. Property damage exceeds $50,000: or
iii. An evacuation of the general public occurs lasting one or more hours; or
iv. One or more major transportation arteries or facilities are closed or shutdown for one hour or more; or
v. The operational flight plan or routine of an aircraft is altered; or
vi. A dangerous situation exists at the site of the accident.

Written report to the US National Response Center is required for all incidents for which a telephone notice has been made. The written report is also required whenever there is any unintentional release of a hazardous material during transportation (including loading, unloading, and temporary storage). This includes all hazardous substances with a hazard class other than ORM-E. A written report is required for any release of the substance in a reportable quantity (RQ). This reporting requirement also applies to the release of any quantity of hazardous waste discharged during transportation. A copy of this report shall be retained at Cleveland Wrecking Company, PCB Treatment Building job site and home office. Will also submit the original and one copy of form DOT-F 5800.1 to the DOT within thirty (30) days of the date of discovery of the incident. The reports will be addressed to:

Information System Manager
Office of Hazardous Materials Transportation
DHM-63
Research and Special Program Administration
US Department of Transportation
Washington, D.C. 20590

Hazard Communication Program

The purpose of this program is to inform you that our company is complying with the OSHA hazard communication standard found in Title 29, Code of federal Regulations 1910.1200. This is accomplished by our four point safety system: compilation of a hazardous chemicals list, the use of MSDS sheets, proper container labeling, and by providing employees with specific training.

Under this program, you will be informed of the contents of the hazard communication standard, the hazardous properties of the chemical(s) with which you work, safe handling procedures, and measures to take to protect yourself and others from these chemicals.

You will also be informed of the hazards associated with non-routine tasks, when and if such and event should take place.

This program applies to all of Cleveland Wrecking Company's work operations where you may be exposed to hazardous substances under normal working conditions or during an emergency situation.

List of hazardous chemicals

A list of all hazardous chemicals that are related to work practices are kept and updated as necessary. All employees are informed of the hazards of asbestos and peripheral substances (mastic floor tile remover, PCB light ballasts, etc.), or any new types of hazardous materials that employees may come in contact with.

Material safety data sheets (MSDS)

MSDS provides you (the employee) with specific information regarding the chemicals you use. The safety director maintains MSDS information on every Hazardous Material in the workplace. This information is available at each location.

Labels and other forms of warning

All hazardous chemicals are properly labeled and updated as necessary. Labels list the chemical identity, appropriate hazard warnings, and the name and address of the manufacturer, importer, or other responsible party.

If chemicals are transferred from a labeled container to a portable container that is intended only for you immediate use, no labels are required on the portable container.

Training

All Cleveland Wrecking company drivers must have a valid Missouri commercial class "A", "B", or "C" drivers license with a DMV hazardous materials endorsement. All employees attend a health and safety orientation program. The program reviews:

1. The requirements contained in the hazard communication regulation, including employee's rights under the regulations;
2. That employees are to be informed of any operations they are involved in where hazardous substances are present;
3. The location and availability of the written hazard communication program;
4. The physical and health effects of the hazardous substances;
5. How to lessen or prevent exposure to these hazardous substances through usage of control, work precautions, and personal protective equipment;
6. Steps the company has taken to lessen or prevent exposure to these substances;

7. Emergency and first-aid procedures to follow if employees are exposed to a hazardous substance or substances;
8. How to read labels and review MSDS to obtain appropriate hazard information;
9. The correct manifesting, packaging, labeling, and personal protective equipment required in the transportation and disposal of all types of hazardous substances and wastes. (All Cleveland Wrecking Company's drivers, yard workers, dispatch, and selected office personnel receive HM126F training);
10. How to read and use the most current edition of the *Emergency Response Guidebook*. (Drivers are taught the proper use of 24-hour emergency response phone numbers); and
11. Emergency contingency plans for roadside breakdowns and accidents per federal and motor carrier safety regulations handbook. (All drivers carry the pocket sized regulations book with them).

EMERGENCY RESPONSE INFORMATION

Per HM:181 part 172 subpart G the following emergency response information must be in your truck and immediately available for use at all times the hazardous material is present. THIS INFORMATION MUST BE KEPT IN YOUR CLEVELAND WRECKING COMPANY INFORMATION NOTEBOOK.

1. **Description of Hazardous Materials:**
   Asbestos containing waste or PCB containing waste. People exposed to PCBs in the air for a long time have experienced irritation to the nose and lungs and skin irritations, such as acne and rashes. The US Dept. of Health and Human Services has determined that PCB's and Asbestos in sufficient dose may reasonably be anticipated to be carcinogens. The EPA has determined that ACM and PCBs are a possible human carcinogen.

2. **Immediate hazards to health:**
   Inhalation of asbestos may lead to the development of Asbestosis, lung cancer or inhalation or mesothelioma. These diseases may take from 15 to 40 years to show up after inhalation of fibers. Inhalation of PCB's over a prolonged period of time may lead to cancer, depending on dosage.

3. **Risk of fire of explosion:**
   Very difficult to ignite. More likely the vehicle will catch fire or explode. DO NOT USE HIGH PRESSURE HOSES!! Material may scatter.

4. **Immediate precautions in the event of accident or incident:**
   Keep unnecessary people away, isolate hazard area and deny entry.

5. **Method of handling fires:**

a. Small fires – use fire extinguisher at base of flame
b. Large fires – try to move vehicle or container from fire area if possible without risk. DO NOT USE HIGH PRESSURE HOSES!!

6. **Methods for handling spills:**
   a. Put on respirator and ty-vec suit
   b. Wet material with Hudson sprayer that is in truck
   c. Cover with plastic from truck
   d. Phone CHP, police or Infotrac hot-line 1-800-535-5053

7. **Preliminary first-aid measures:**
   In case of contact with material; flush wyes with running water for at least 15 minutes. Wash skin with soap and water. Remove and isolate contaminated clothing and shoes.

Alternative Method of Demolition

In the event of notification on the part of EPA that their Structural Analysis indicates safety risks associated with demolition, use the following remedial measures in the order of presentation:

1. Install one level of supplemental shoring posts in area of structural concern to increase loading capacity of floor structures. Visually inspect for cracks and spray paint existing cracks, Continue demolition on 15 minute intervals, visually inspecting for crack propagation, and spray-painting any new cracks with different color spray paint. If crack propagation inspections yield surface area crack propagation in a diminishing trend, continue demolition in the accustomed manner.

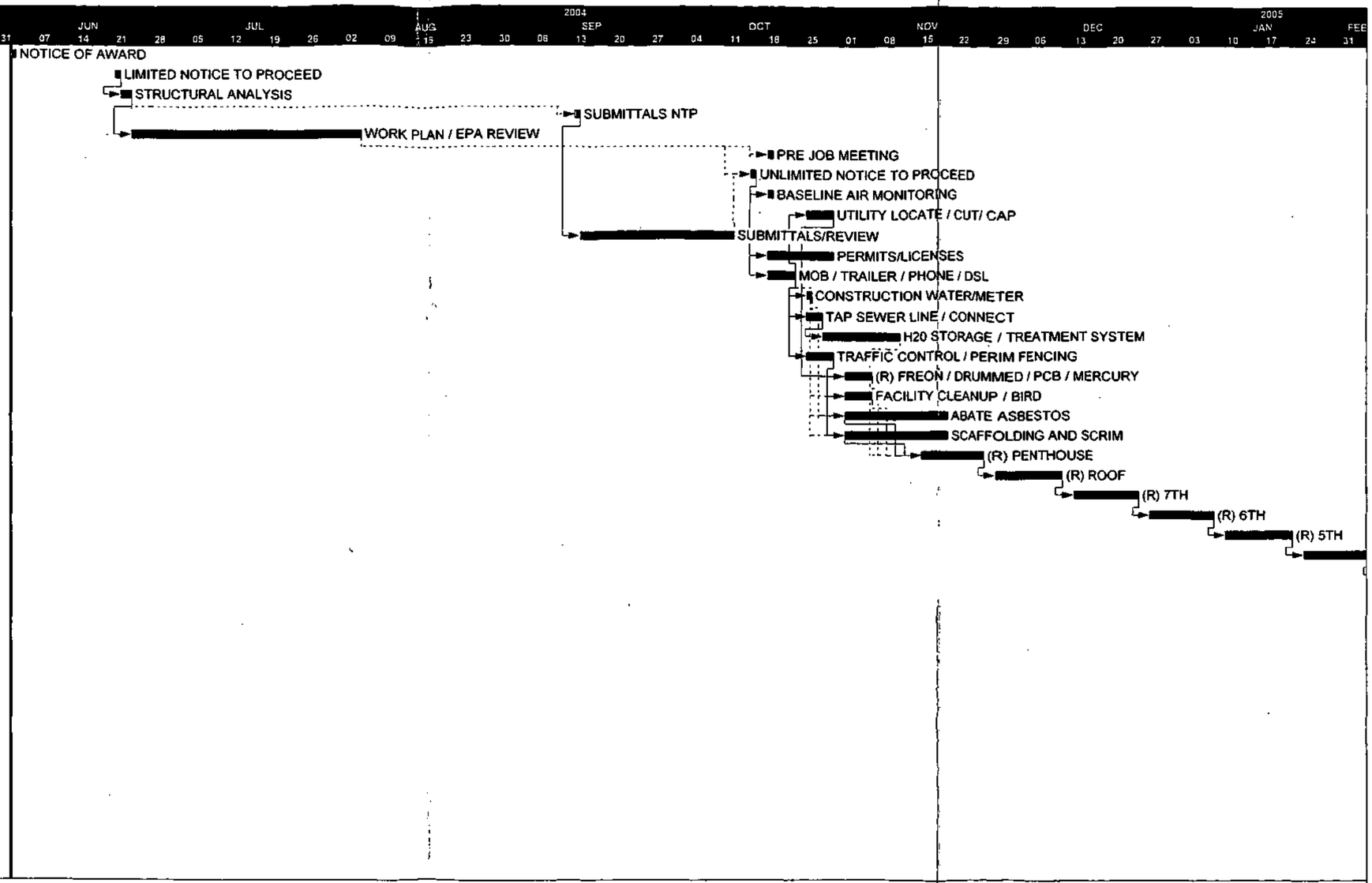
2. If crack propagation inspections yield surface area crack propagation in a increasing trend, install post-shores on two levels (i.e., re-shore two levels) prior to commencement of demolition in areas of concern. Visually inspect for cracks and spray paint existing cracks, Continue demolition on 15 minute intervals, visually inspecting for crack propagation, and spray-painting any new cracks with different color spray paint. If crack propagation inspections yield surface area crack propagation in a diminishing trend, continue demolition in the accustomed manner.

3. If crack propagation inspections yield surface area crack propagation in a increasing trend, perform load-testing in area of concern, per load testing procedure outlined in Work Plan, to verify load-carrying capacity of building. After verification of load carrying capacity, continue demolition using floor-by-floor methods, after visual Inspection of floor or beam cracking. Continue

working visual floor cracking inspections on 15 minute intervals in areas of concern. If load-test fails, install supplemental post shores and re-test.

REVISED CONSTRUCTION SCHEDULE
Cleveland Wrecking Company

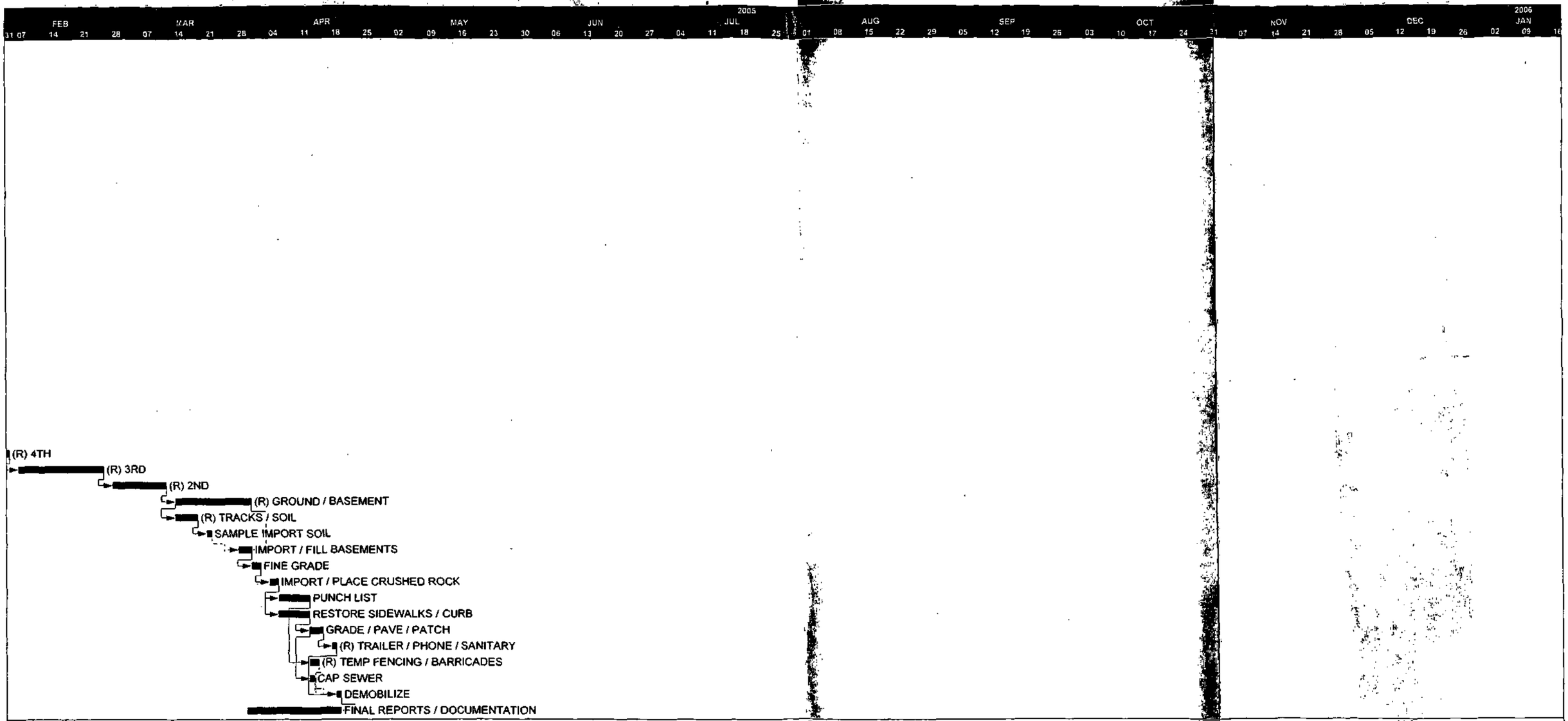
Act ID	Description	Orig Dur	Rem Dur	Early Start
1000	NOTICE OF AWARD	1d	1d	02JUN04
1001	LIMITED NOTICE TO PROCEED	1d	1d	21JUN04 *
1002	STRUCTURAL ANALYSIS	2d	2d	22JUN04
1003	SUBMITTALS NTP	1d	1d	13SEP04 *
1004	WORK PLAN / EPA REVIEW	6w	6w	24JUN04
1005	PRE JOB MEETING	1d	1d	18OCT04 *
1006	UNLIMITED NOTICE TO PROCEED	1d	1d	15OCT04 *
1007	BASELINE AIR MONITORING	1d	1d	18OCT04
1008	UTILITY LOCATE / CUT/ CAP	1w	1w	25OCT04
1020	SUBMITTALS/REVIEW	4w	4w	14SEP04
1030	PERMITS/LICENSES	2w	2w	18OCT04
1040	MOB / TRAILER / PHONE / DSL	1w	1w	18OCT04
1041	CONSTRUCTION WATER/METER	1d	1d	25OCT04
1042	TAP SEWER LINE / CONNECT	3d	3d	25OCT04
1043	H20 STORAGE / TREATMENT SYSTEM	2w	2w	28OCT04
1044	TRAFFIC CONTROL / PERIM FENCING	1w	1w	25OCT04
1045	(R) FREON / DRUMMED / PCB /	1w	1w	01NOV04
1046	FACILITY CLEANUP / BIRD	1w	1w	01NOV04
1050	ABATE ASBESTOS	3w	3w	01NOV04
1060	SCAFFOLDING AND SCRIM	3w	3w	01NOV04
1070	(R) PENTHOUSE	2w	2w	15NOV04
1080	(R) ROOF	2w	2w	29NOV04
1081	(R) 7TH	2w	2w	13DEC04
1082	(R) 6TH	2w	2w	27DEC04
1083	(R) 5TH	2w	2w	10JAN05
1084	(R) 4TH	2w	2w	24JAN05
1085	(R) 3RD	3w	3w	07FEB05
1086	(R) 2ND	2w	2w	28FEB05
1087	(R) GROUND / BASEMENT	2w3d	2w3d	14MAR05
1120	(R) TRACKS / SOIL	1w	1w	14MAR05
1121	SAMPLE IMPORT SOIL	1d	1d	21MAR05
1122	IMPORT / FILL BASEMENTS	3d	3d	28MAR05
1123	FINE GRADE	2d	2d	31MAR05
1124	IMPORT / PLACE CRUSHED ROCK	2d	2d	04APR05
1140	PUNCH LIST	1w	1w	06APR05
1350	RESTORE SIDEWALKS / CURB	1w	1w	06APR05
1360	GRADE / PAVE / PATCH	3d	3d	13APR05
1370	(R) TRAILER / PHONE / SANITARY	1d	1d	18APR05
1380	(R) TEMP FENCING / BARRICADES	2d	2d	13APR05
1390	CAP SEWER	1d	1d	13APR05
1395	DEMOBILIZE	1d	1d	19APR05
1400	FINAL REPORTS / DOCUMENTATION	3w	3w	30MAR05



Start date	02JUN04
Finish date	19APR05
Data date	02JUN04
Run date	27SEP04
Page number	1A

CLEVELAND WRECKING COMPANY
PCB TREATMENT BUILDING

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point



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Run date	27SEP04
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CLEVELAND WRECKING COMPANY
PCB TREATMENT BUILDING

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point

FINAL RA PROCEDURES
Cleveland Wrecking Company

PCB TREATMENT BUILDING

Final RA PROCEDURES– 2100 WYANDOTTE ST

CLEVELAND WRECKING COMPANY

Revision 4 – September 29, 2004

1.1 INTRODUCTION

The 2100 Wyandotte Building is a 7-story poured-in-place concrete and brick structure dimensioned approximately 150 feet X 150 feet X 90 feet tall to the parapet. A 40-foot water tower and elevator structure is on the roof of the building.

Accidental spills and poor housekeeping has resulted in contamination of the floors and walls with PCB residuals. The contaminated areas have been identified via site survey and plot plan. Additionally, there are identified quantities of asbestos, pigeon droppings and drummed waste that must be remediated.

The following subsections give a general outline of means and methods for the remediation and demolition work.
These procedures are intended for use in conjunction with the Final RD Work Plan during dismantlement (not as a stand-alone document). This Work Plan gives a specific outline to the "Means and Methods" of the dismantlement, which are treated generally in the Final RD Work Plan.

1.2 METHODS AND APPROACH

The approach to the PCB Treatment Project is to implement a Cleaning and Decontamination program, followed by a Demolition and Dismantlement program. In the event that conflicts between this work plan and the EPA-approved Remedial Design are encountered, then the RD will take precedence unless written approval is provided by the EPA.

Modification to this Work Plan may be developed during implementation of the Plan. Modifications to the Work Plan (if any) will be addressed by Addenda, subject to approval by HHSI.

1.2.1 Cleaning and Decontamination

Cleaning will include the following tasks:

- Outfit workers in modified Level "C" Protective gear.
- Remove bird droppings in stairwells and other internal areas of gross accumulation.
- Treat walls and floors of stairwells with Bleach solution for disinfection
- Haul and dispose resulting waste materials
- Perform all work according to local, State and Federal codes and requirements, and per specification Section 2086 paragraph 3.02: "Cleanup Pigeon Droppings and Other Biological Wastes".

Cleaning will be done with square-nose shovels, brooms, scrapers and similar dry methods. Water will be employed as a dilution media for the bleach solution. Bleach Solution will be applied in a broad mist manner that will mitigate runoff or ponding. All liquid will be collected with the waste. Sand will be used as necessary to mitigate slip-and-fall hazards in stairways. This waste will be disposed as solid waste at the Courtney Ridge Landfill in Sugar Creek, Missouri. Biological Waste will be containerized in drums, and transported by DOT approved truck to the Courtney Ridge Landfill.

1.2.2 Asbestos Abatement

Abatement work will include the following tasks:

- Provide and install poly, :HEPA exhaust fans and filters for containments as required
- Outfit workers in modified Level "C" Protective gear.
- Perform all work according to local, State and Federal codes and requirements, and per EPA-approved remedial design and Specification Section 02080.
- Remove Floor Tile
- Remove Floor tile and mastic
- Remove baseboards and mastic
- Remove Roofing
- Remove Roof flashing
- Remove pipe insulation – various diameters
- Remove pipe fittings – various diameters
- Remove Boiler insulation
- Transport and dispose of Asbestos waste.

EXECUTION

A. Pre-Asbestos Abatement Preparations for Removal of Friable Asbestos-Containing Building Materials:

Kingston Environmental Services, Inc. (KES), a subcontractor to Cleveland Wrecking Company, is licensed by the State of Missouri Department of Natural Resources as an asbestos abatement contractor. KES has been conducting asbestos abatement and oversight for over 15 years. KES will prepare the work area as described in this section. Preparation work will be performed according to the general sequence of steps and procedures listed below to insure that proper containment and protection systems are installed prior to any work, which could generate airborne asbestos fibers:

1. The following procedures apply to preparation of buildings/interior spaces where friable asbestos containing materials are to be abated.

2. Remove and relocate any non-fixed items (not removed by the Owner).

3. Isolate, clean by HEPA-vacuuming and washing, and seal airtight with plastic and tape all HVAC system equipment to remain in or servicing the work area.

4. Carefully clean all surfaces in the work area, which may be contaminated with any dust or debris by using wet methods and a vacuum equipped with a HEPA-filter.

5. Cover any windows or other openings with 6 mil poly sheeting. Erect any required barriers, coverings, or access platforms; post access restriction signs, seal all openings into the work area; install any temporary access openings; poly all floors and walls (unless waiver obtained by Kansas City Air Quality (KCAQ)); protect and cover all fixed items. Install Decontamination Facility and HEPA-exhaust system as described herein.

6. Isolate all electrical systems and provide temporary power and lighting as required for the work area and affected non-work areas. If electrical service is not available from the building system, portable generators will be provided and utilized by KES. All electrical wires will be suspended using duct tape or other non-conductive material to reduce trip hazards. Use of GFCI's will be standard on all electrical connections.

7. Water will be obtained from the building service if available. If this is not possible or feasible, KES will supply a portable water storage tank on-site to ensure adequate water supply for the duration of the project.

B. Isolation of Work Areas and Installation of Decontamination Facilities:

1. Work Area Isolation and Protection:

   a. KES will isolate the work area for the duration of work by completely closing and sealing all openings and doorways into the work area including, but not limited to, heating and ventilation ducts, doorways, windows, floors and ceiling penetrations, and lighting. Isolation/sealing will be accomplished by using two (2) layers of 6-mil plastic sheeting taped securely in place. The work area will be protected and sealed airtight to the extent possible, and be subject to the approval of the Owner Entry and Exit of the containment area will be protected by a 3-stage decontamination area.

   b. Emergency and fire exits will be clearly marked and maintained.

   c. Isolation Partitions and Barriers - Open doorways, cased openings, windows, and other openings as mandated by project conditions will be sealed airtight with temporary partitions as follows:

      1. KES will cover opening with a double layer of plastic sheeting with joints staggered and sealed with tape.

   d. KES will isolate heating, cooling, and ventilating air systems to prevent contamination and fiber dispersal.

e. KES will thoroughly pre-clean all dust or debris from any fixed objects, floors, radiators, or other equipment within the work area using HEPA-vacuuming equipment and/or wet wiping.

f. KES will cover floor and walls with minimum of two (2) independent layers of 6-mil plastic sheeting, turning each layer up onto wall a minimum of 16", and fasten securely to wall. KES will cover walls with two (2) layers of 6-mil plastic sheet, extending to floor, overlapping the two (2) floor sheets by not less than 12" excluding turn-up. All joints in plastic sheets will be glued and taped in a manner to prohibit air movement, and to prevent passage of water or other liquids. The bottom layer of floor poly will be securely fastened to the floor to prevent creases or slippage that would pose a hazard to workers. (KES will request the waiver of wall and ceiling poly from Kansas City Air Quality).

g. KES will install work area HEPA-filtered exhaust systems as previously specified.

h. KES will post warning signs in English and Spanish meeting the requirements of OSHA 29 CFR 1926.58(k)(1) and (k)(2)(ii) at the outside doorway to the Decontamination Facility.

i. Warning signs will be readily visible to any person attempting to enter the work area.

C. Asbestos Removal Under General Containment Procedures:

1. This section covers the removal of asbestos-containing boiler insulation as specified herein.

2. Amended water (wetting agent), mixed and carefully applied using an airless sprayer as specified by the manufacturer, will continuously be used to control the release of asbestos fibers from the friable material prior to and during removal. The amended water will be applied in sufficient quantity to fully penetrate and saturate the friable material prior to its removal.

3. KES will implement all control procedures previously described.

4. Removal Methods:

a. Worker protection will require disposable protective clothing and a minimum of Half-Face air Purifying Respirators with disposable dual HEPA-filtered cartridges approved by NIOSH/MSHA.

b. After large areas of the asbestos material have been fully wetted , the asbestos will be carefully removed in small sections by hand using scrapers or other suitable tools.

c. As the material is removed, it will be promptly wetted and packed into impermeable, labeled 6-mil polyethylene disposal bags. When each bag is full, the packaged material will be sprayed with amended water, sealed, double bagged and transported to a temporary storage area inside of the work area.

d. KES will repeatedly spray the friable material to prevent it from drying out.

e. Once the majority of the asbestos is removed, KES will scrub the substrate surface with a wire brushes or equivalent, and a water spray, and then thoroughly wash it to remove all *remaining material.*

f. After obtaining approval of the cleaning from the Third Party Air Monitoring Firm KES will then seal all substrate surfaces from which asbestos material was removed with at least one (1) coat of an approved penetrating encapsulant such as Foster's 32-60.

5. KES will minimize contamination of the work area floor, the exterior of disposal containers, and all other surfaces within the work area. At the end of each shift, all surfaces will be cleaned of all materials and then HEPA-vacuumed or wet mopped.

6. The decontamination facility will be wet cleaned using wet hand-cleaning methods such as wiping and scrubbing with disposable towels, upon completion of any waste removal.

7. The decontamination facility will be wet cleaned using wet hand-cleaning methods such as wiping and scrubbing with disposable towels and HEPA-vacuumed, as appropriate, after each shift change.

D. Asbestos Removal of Class I, Window Panels / Window Putty as a Whole:

1. This section covers the removal of asbestos-containing window putty as a whole, where full containment procedures are not required.

2. Amended water (wetting agent), mixed and carefully applied using an airless sprayer as specified by the manufacturer, will continuously be used to control the release of asbestos fibers from the non-friable material prior to and during removal. The amended water will be applied in sufficient quantity to fully penetrate and saturate the non-friable material before it is removed. Wetting will commence prior to removal work to ensure effective saturation.

3. Worker protection will be one-half face negative pressure respirators with dual HEPA-cartridges, and full body tyvek coveralls for preparation, removal, and final cleaning.

4. Removal Methods:

a. No asbestos removal work will begin until the work area has been prepared. Removal workers will wear respirators and protective clothing as previously described throughout all removal, clean up, and waste handling operations.

b. Place a large 6-mil drop cloth beneath the window, which will be removed.

c. Carefully cut, sand or unscrew the fasteners, which hold the window in place.

d. Remove the window panel and place the window panel into a 6 mil lined asbestos disposal dumpster. Once the dumpster is full, the workers will burrito wrap the windows by sealing the plastic with spray glue and duct tape. The dumpster will then be labeled and manifested.

E. Asbestos Removal Using Glove-Bag Technique:

1. This section covers the removal of asbestos-containing thermal system joint or pipe insulation , using the glove bag removal technique.

2. Amended water will be carefully applied using a Hudson sprayer as specified by the manufacturer. The amended water will continuously be used to control the release of asbestos fibers from the friable material prior to and during removal. The amended water will be applied in sufficient quantity to fully penetrate and saturate the friable material before it is removed. Wetting will commence prior to removal work to ensure sufficient saturation.

3. Worker protection will be one-half face negative pressure respirators with dual HEPA-cartridges, and full body tyvek coveralls for preparation, removal, and final cleaning.

4. Removal Method for Thermal System Insulation:

   a. Install glove-bag at each removal location. Ensure that glovebag is sealed 6" on either side of asbestos containing joint or pipe insulation. Insert HEPA-vacuum into glovebag port to create negative pressure containment inside the bag. HEPA-vacuum will be utilized as needed during the glovebag procedure.

   b. Wet the material inside the bag using amended water via the Hudson sprayer.

   c. After the material has been thoroughly wetted, carefully slice the insulation lengthwise, parallel to the pipe. Remove insulation and allow falling to the bottom of the bag. All contaminated pipe insulation inside the glovebag removal area must be removed.

   d. Apply adequate amended water to ensure the waste remains wet at all times.

   e. Thoroughly scrub pipe to completely remove all insulation. Continue misting the pipe and inside of the glove-bag during detail cleaning work.

   f. Clean inside of glove-bag by misting and wiping sides of bag and moving all debris to bottom of bag. Mist exposed pipe sections or joints with Fosters 32-60 penetrating encapsulant.

   g. Remove the bag from the cleaned pipe as follows: remove air from the bag using a HEPA vacuum inserted into a side port; gather bag in the center just under the pipe; twist bag and seal around twisted "neck" portion; hold clean waste container under bag and cut through

sealed neck dropping bag directly into clean waste container; remove top portion of bag from pipe; and seal waste container.

h. Thoroughly clean removal area by HEPA vacuuming and wet wiping. Dispose of poly sheeting covering adjacent surfaces. All waste will be double-bagged and placed in properly labeled asbestos waste bags.

i. Workers will dispose of protective clothing after HEPA-vacuuming tyvek suits.

F. Removal Procedures for Roofing Materials:

1. KES will install OSHA specified warning signs around the workplace at every potential point of entry into the work area from the outside.

2. KES will install a fully enclosed waste chute to convey roofing material, from roof to a poly lined, "burrito wrapped" waste container. Waste may also be bagged and carried off the roof to the waste container should the chute and container method not be feasible for the upper or lower level roofs.

3. KES will install roof access from ground level.

4. KES will seal all penetrations directly adjoining roofing, tar sealant and flashing locations using 1 layer of 6-mil poly sheeting and duct tape (i.e., doors, HVAC intake/exhaust ducts, etc.)

5. KES will wet roofing materials, tar sealants and flashings to be removed using an airless sprayer and amended water and remove using hand tools.

6. KES will cut roofing material into manageable sections and remove in pieces after suitable wetting.

7. KES will remove tar sealants using 3 methods separately or in combination:

   a. Scrape sealants and flashings from fixture (i.e., vent pipe, duct, etc.)

   b. Solvents/mastic removers

   c. Cut adjoining non-ACM roofing materials around sealant and flashing area and remove as one component.

8. All non-friable roofing materials will be carried to the edge of the roof where off-loading and transport will take place by means of a chute, hoist, or scissor lift.

9. KES will carefully lower asbestos-containing materials that have been removed in units or sections to the ground or a lower floor without dropping, throwing, sliding or otherwise damaging the ACM.

10. Roofing material will be immediately sealed in a leak-tight container, covered drop box, or plastic wrapping.

11. Remaining wetted ACM waste, including plastic or wooden barriers, will be placed in leak-tight containers or sealed bags.

12. KES will maintain on-site storage of encapsulated materials or leak-tight containers within an enclosed storage area prior to transportation. Leak-tight containers and encapsulated material will not be accessible to the general public and will be locked when not in use.

13. KES will package all waste materials used to perform the work, and transport to waste dumpster, or on-site storage facility.

14. KES will perform all asbestos removal work using certified workers wearing full disposable suits (gloves, hoods, and boots) and respiratory protection as follows:

    a. Preparation and removal work: minimum of half-face negative pressure respirators equipped with HEPA cartridges and eye protection.

    b. During removal using solvents/mastic removers: Full face or half piece negative pressure respirators equipped with dual asbestos/organic vapor filter cartridges.

G. Removal Procedures for Vinyl Floor Tiles/Mastic and Baseboard/Mastic:

1. KES will install OSHA specified warning signs around the work space at every potential point of entry into the work area from the outside including the entrance to the decontaminated facility.

2. KES will isolate electrical systems and provide temporary power and lighting as required for the work area.

3. KES will seal all penetrations in the work area using 2 layers of 6-mil poly sheeting and duct tape (i.e., windows, doors, HVAC diffusers, etc.).

4. KES will wet asbestos floor materials to be removed using an airless sprayer and amended water and remove using hand tools. Water will be supplied as described in Section A, Item 7 of this work plan.

5. KES will remove mastic adhesives using a chemical solvent.

6. KES will adequately wet the waste prior to sealing bags and package waste into labeled waste bags.

7. KES will clean external surfaces of contaminated containers and equipment by wet cleaning and/or HEPA-vacuuming in the work area before moving items from the work area.

8. KES will package all waste materials used to perform the work as non-friable, non-hazardous ACMs.

9. KES will perform all asbestos removal work using certified workers wearing full disposable suits (gloves, hoods, and boots) and respiratory protection as follows:

   a. Preparation and removal work: minimum of half-face negative pressure respirators equipped with HEPA cartridges.

   b. During removal of mastic adhesive and through to work area clearance: half face negative pressure respirators equipped with dual asbestos/organic vapor filter cartridges.

G. Removal Procedures for Transite Siding:

1. KES will install OSHA specified warning signs around the work space at every potential point of entry into the work area from the outside including the entrance to the decontaminated facility.

2. KES will isolate electrical systems and provide temporary power and lighting as required for the work area.

3. KES will seal all penetrations in the work area using 2 layers of 6-mil poly sheeting and duct tape (i.e., windows, doors, HVAC diffusers, etc.).

4. KES will wet asbestos transite siding materials to be removed using an airless sprayer and amended water and remove using hand tools.

5. KES will adequately wet the waste prior to sealing bags and package waste into labeled waste bags.

6. KES will clean external surfaces of contaminated containers and equipment by wet cleaning and/or HEPA-vacuuming in the work area before moving items from the work area.

7. KES will package all waste materials used to perform the work as non-friable, non-hazardous ACMs.

8. KES will perform all asbestos removal work using certified workers wearing full disposable suits (gloves, hoods, and boots) and respiratory protection as follows:

   a. Preparation and removal work: minimum of half-face negative pressure respirators equipped with HEPA cartridges.

H. Final Inspection and Testing:

1. After all required cleaning of the work space, KES will notify Cleveland Wrecking that the work space is ready for inspection and final testing. Notice will be given 24-hours prior to final inspection and subsequent testing.

2. Following the satisfactory completion of clearance air monitoring, work area isolation barriers will then be disassembled and properly disposed of as non-friable ACM.

I. Personal Air Monitoring:

1. Monitoring

Exposure Monitoring:

a. Whenever KES has a workplace or work operation covered by 1926.1101 or this program we perform monitoring to accurately determine the asbestos airborne concentrations to which employees may be exposed. Monitoring will be conducted using a portable pump designed for this type of sampling activity. Sampling media shall include a 25mm cassette equipped with and 8 micron mixed cellulose ester filter. Primary method of laboratory analysis will be NIOSH Method 7400 – Phase Contrast Microscopy.

b. Determinations of employee exposure are made from breathing zone air samples that are representative of the 8-hour TWA & STEL of each employee.

c. Representative 8-hour TWA & STEL employee exposure is to be determined on the basis of one or more samples representing full-shift exposure for employees in each work area. Sampling procedures will be conducted by the project supervisor working under the direction of a KES-employed State of Missouri Department of Natural Resources certified Air Sampling Professional.

Periodic Monitoring Within Regulated Areas:

a. This task is to be completed by the owner's Third Party Air Monitoring Representative. Please refer to the Dust Control and Air Monitoring Plan.

Termination of Monitoring:

a. If the periodic monitoring required by paragraph (f)(3) of OSHA 1926.1101 reveals that employee exposures, as indicated by statistically reliable measurements, are below the action level, KES may discontinue monitoring for those employees whose exposure are represented by such monitoring. This determination is made on a case-by-case basis which considers such factors as abatement method, work task, abated material, project location/site conditions, engineering control measures, etc.

J. Respiratory Protection

TABLE FOR RESPIRATORY PROTECTION RESPIRATORS

Airborne Concentration of Asbestos, Tremolite, Anthophyllite, Actinolite, or a Combination of These Minerals	**Respirator**
Not in excess of 1 f/cc (10 X PEL)	1 Half-mask air-purifying respirator equipped with high-efficiency filters
Not in excess of 5 f/cc (50 X PEL)	1 Full face piece air-purifying respirator equipped with high efficiency filters.
Not in excess of 10 f/cc (100 X PEL)	1) Any powered air-purifying respirator equipped with high-efficiency filters. 2) Any supplied-air respirator operated in continuous flow mode.
Not in excess of 100 f/cc (1000 X PEL)	Full face piece supplied-air respirator operated in pressure demand mode
Greater than 100 f/cc (1,000 X PEL) or	Full face piece supplied air respirator operated in unknown concentration pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus.

K. *Encapsulation of Asbestos Containing Materials*

1. Product Data

   The encapsulant is called Fosters 32-60 Encapsulant which is non-flammable.

2. Installation Instructions

   Fosters 32-60 Encapsulant is pre-mixed and applied with an airless sprayer. Workers will wear personal protection equipment when installing.

3. Material Safety Data Sheet

The manufacturer's MSDS is included with the submittals at the preconstruction meeting.

1.2.3 Demolition

Demolition work will be implemented by area according to the following Means and Methods:

- Engineered Design

Limited structural information is known about the PCB Treatment Building. Therefore, the design for equipment loading has been verified by determining the actual reinforcing pattern in the existing floors and structural frame, together with use of the as-built plans and field measurements, from which the allowable loading has been determined.

Based on the Structural analysis completed by A.J. Miller and Associates, and stamped by D.H. Charles Engineering, Inc. (licensed in the State of Missouri), the existing floor system of the PCB Building is of a structurally sound character, and will support the heaviest equipment intended for the demolition on floors 6 through Ground level. Floor #7, Roof, and other floors that have been diminished by scarifying, or show signs of weakening or spalling during dismantlement may be augmented with the use of plywood material – (as approved and verified through the attached calculations provided by the above referenced engineers) and placed under the running tracks of the mini excavator, to assist in bridging the diminished slabs in these areas.

The Equipment loading Structural Report is based on engineering structural calculations, attached as **Appendix Section K.**

As with all projects, Cleveland's Superintendent will monitor the floor conditions during demolition, by inspecting the under-slab and beams while the equipment in operation, and verifying that the existing floor systems are not being compromised (i.e cracking, spalling or failures) in the areas of equipment staging. A quantity shoring posts will be reserved for the duration of the project, to assist in support of floors, in the event that spalling or failures are detected which could compromise the safety of crews working in the building.

To determine the reinforcing pattern in the floors and structural frame, Cleveland Wrecking mobilized a hand-breaking crew and physically hammered penetrations in floor slabs, joists, beams and columns to determine the existing reinforcing in the structural elements of the building. CWC manually jack-hammered a small 3 x 3 section of the structural slab on 2 to 3 floors, and conducted physical measurements on which the structural design for equipment loading was based. Similarly, CWC manually jack-hammered 1 or 2 locations on one or two floors of north-south girders, east-west girders, and east-west purlins, or junior beams. The jack hammering of beams and girders was confined to the underside of the beams, where reinforcing designed for floor loading is located. Similarly, we conducted physical measurements of the reinforcing pattern, noting location, numbers and size of reinforcing, and based the structural design on these findings.

- Scaffolding and Staging

CWC will install a full height scaffolding on the north and east elevations of the building, with a black scrim (plastic woven mesh) installed on the face of the scaffold to mitigate the chance of fly rock from the demolition entering the public way. The west and south sides face the interior of the job site (hence do not

pose a risk to the general public). Worker protection for work being done at the West and South elevations will be provided by means of temporary fencing, and by communication with the workers during breaking operations which encroach on the west and south building elevations. Please refer to the Fencing and Control Plan found in **Appendix J** for location of temporary fencing to service demolition at the west and south elevations. Temporary fencing will be of a post-and-stanchion variety (with a foot at the base of the post) to allow flexibility and move-ability during demolition. Temporary fencing will be managed by the Site Superintendent, and will be modified as required by determining the actual incidence and horizontal projection of fly rock while working at locations near the west and south elevations.

We have selected the Waco Red type of scaffolding, per the specifications found in the cut sheet provided in the Appendix. Please refer to the "Waco Red" Scaffold System example shown in **Appendix A.**

A sample of the woven scaffold Scrim is attached to **Appendix B.** The scrim material will be attached to the scaffolding by means of embedded grommets and #9 tie wire attached to the scaffold frame. Scrim will be inspected periodically and repaired as necessary.

- Storm Water Mitigation Plan

CWC will implement a Storm Water Mitigation Plan, in the event of rain while dismantling the building.

A rain event occurring during dismantlement will introduce storm water into the interior of the building, where it may potentially mingle with the PCB contaminated floors and structure. It is not anticipated that such mingling will produce hazardous runoff; however, control and verification of the content of storm water, prior to discharge, will be conducted to ensure no uncontrolled discharges occur at the site.

Please refer to the attached Sketch detailing CWC's Storm Water Mitigation Plan included in **Appendix C.** Key elements of the plan include:

1. Use the existing "crowned" floor system to convey water to the east and west walls of the building. (The floor system is slightly crowned along the north-south centerline, creating a sheet-flow of water to the east and west walls).
2. Install poly sheeting over the greater-than-50 ppm PCB-impacted floors exposed to storm water. If poly sheeting is not possible due to ongoing demolition work, route water exposed to greater-than-50 ppm PCB by sandbagging with conventional sandbags, continuous sandbags (long sausage-shaped bags) or similar means, to drain lines for eventual capture in Baker Tanks.
3. Install vertical PVC rain lines at the southeast and southwest corners, and manually move storm water, or directionalize by means of sandbagging, to PVC drains and into Baker Tanks.
4. Collect rainwater that contacts the inside of the building in Baker Tanks prior to discharge.
5. Perform sampling on collected rainwater to verify suitability for storm water discharge.
6. Once suitability for discharge has been determined, discharge stored or continuously generated water into the existing sewer line on site, or, at contractor's selection, use as dust control media.
7. Install a truck-mounted filter media system for onsite treatment of potentially contaminated storm water, for the purpose of filtering stored water which will not meet discharge

standards, or, at contractors selection, store rain water and use as dust control media. A Skid-mounted filter system will be sized suitable for transport in a standard pick up truck, and will include charcoal (or other suitable) filter media or screening system.

8. Once suitability for discharge has been determined, discharge stored or continuously generated water into the existing sewer line on site. For unsuitable discharge water, refer to Step 7.
9. Install sandbags around the perimeter of the site, to divert water away from the demolition site, and to divert interior water to existing drains or flow lines.

- Water Containment Plan

Water will be the primary means of dust suppression during demolition. CWC's plan for containment of Dust-Mitigating water is to monitor its application, being careful to avoid ponding and runoff. The method of water application will be by controlled misting. Misting will occur prior to initiation of breaking operations, and will continue though the breaking and stockpiling cycle, until the building rubble is safely loaded to trailer.

Hoses will be fitted with mist-inducing nozzles, and hose connections will be frequently checked for leaks and fraying. Hose water will be plumbed up to the roof level by routing flexible 1 ½ inch hose through floor openings. Insufficient hose pressure will be mitigated with a booster pump, if required. The source of water will be by fire service line with metered connection, coordinated with KC MO.

- Dust Control Plan

As mentioned in the prior section, water will be the primary dust suppressant, applied directly to the point of demolition work, in a mist form. Additional dust mitigating measures will be employed as outlined below:

1. Construct mini containments around the footprints of the >50 PCB-contaminated areas of the building, to assist in containing dust. Mini containments will be similar to that shown in **Appendix D**. Containments will be constructed on the floor below the footprint of the demolition, in order to create a boundary for dust generated from the dropping of pulverized rubble. Local water will be applied "from above" at floor level where impact-breaking is occurring, to mitigate dust during demolition. Mini containments will be constructed out of panelized plastic sections, using an adjoining column as support, and taped or anchored securely to the floor and ceiling. Containments will be self-supporting and moveable. Containments will be equipped with small openings in the panels, to enable the spray water to be applied within the containment and from the floor above, during the demolition work.
2. Perform Air Monitoring. Air monitoring will take two forms: First, personnel will be fitted with personal air monitoring pumps, clipped to an exterior pocket, to measure dust content during the working shift. Readings will be taken at the end of each shift to verify that workers exposures are less than 0.5 mg PCB per cubic meter per 8 hour average (OSHA PEL for Aroclor 1254). Second, perimeter monitoring will be performed by HHSI to verify dust levels at the project boundary are within regulatory compliance.

3. Workers will be fitted with half face respirators and appropriate cartridges during demolition work to mitigate hazards from inhalation of PCB-containing dust. Workers will wear tyvek suits to mitigate skin contact of PCB dust, until such point that PPE can be safely down-graded, based on sample results.
4. Seal windows. Windows and sash will be removed during the asbestos abatement phase of the project, due to the asbestos content of the window putty. In order to mitigate the effects of cross-drafts, and more efficiently contain dust inside the building, perimeter windows will be temporarily sealed with plywood, visqueen or similar barrier prior to removal of TSCA Waste floor areas.
5. Perimeter air monitoring stations will be set up by HHSI at strategic locations around the job site. Sample results from monitoring will be collected by HHSI during work progress. Copies of sample results will be distributed by Hard Hat Services during removal work, and will be made part of the final Summary Report t upon conclusion of the Work.
6. Employ wet saws to score at the horizontal limits of >50 PPM PCB contamination.
7. Refer to the Dust Control Plan in the Wyandotte Design for Action Levels for PCB-impacted dust. If a high dust level alarm is in effect, temporarily cease dust-generating activities, or modify activities to reduce dust impact, by increasing application of water mist, or changing location of dust generating dismantling work to an area more protected from wind. These dust mitigating strategies also hold for areas that are <50 PPM PCB contamination.

- Demolition of Building – Penthouse

Due to the height of the penthouse, the upper half of the structure will be removed "by-hand", with the aid of a full height scaffold and planking for access. Inside of the second floor of the Penthouse is a 30,000 gallon steel water tank.

Using laborers, jackhammers and compressors, CWC will break-in the top 20 feet of the water tower structure. Workers will use scaffolding planks, hung off the interior face of the scaffold, as staging for the work. The steel tank will be cut into sections with the use of torches and removed, and the penthouse structure will be dismantled and removed, at which point the scaffolding and staging will be removed and lowered to grade. A lift crane will be stationed at grade to assist in lifting materials, gas and oxygen bottles, compressor, bobcat and other tools to the roof, and for lifting-off of scaffold sections.

Demolished materials will be lowered to the ground through floor openings, or craned-off the building in a skip-pan (a half-cylinder tank with lifting attachments) and lowered to the ground for further processing and removal. If crane is used to lower demolished materials, a factor of safety of 75% shall be used for allowable loading, per standard crane chart. For example, if crane specifications allow 10,000 pounds for 125 feet of main boom, at a 12 degree angle of inclination loaded over the front of the crane, then the allowable load shall be limited to 7500 pounds of combined skip pan and contents. (Contents shall be estimated as percentage of full volume weight of skip pan, based on 150 pounds per cubic foot for concrete).

Dust mitigation at the roof level will be by hand held hose and misting. Volume of dust generation will be comparatively less at this stage, due to the diminished productivity of jack-hammers.

- Demolition of Chimney at South West Corner of Building

The Chimney will be removed in a like manner to the Penthouse, with care, to avoid collapse and falling debris. The Chimney is within the working range of the mechanized equipment intended for the demolition, and can be dismantled using controlled methods. The Chimney is constructed of brick components and will reduce itself to small pieces in the process of dismantlement.

- Segregation of Waste Streams

Waste Streams for the PCB Treatment Building will be Subtitle D Waste (approximately 20,830 tons) and TSCA Waste (approximately 3375 tons). A primary responsibility of the demolition is to insure that co-mingling of waste streams does not occur, due in part to the difference in transportation and disposal destinations and procedures represented by the two waste streams.

CWC will take the following steps to segregate TSCA Waste from Subtitle D waste, and minimize cross-contamination between types of waste:

1. Score-saw at the limits of the TSCA Waste footprint(s) with wet diamond flat-saw. The Drawing C3 describes the "greater than or equal to 50 ppm shaded floor areas" designated for removal as TSCA Waste. CWC will wet score-saw at the limit of the TSCA waste footprints, which will eliminate "over break" of floors, and unnecessary mixing of waste streams. Saw lines will be laid-out in spray paint, in advance of saw scoring, for inspection and approval by Hard Hat, prior to sawing and demolition. The footprint outline of each TSCA waste footprint will also be painted with bright paint to help identify the areas that will require TSCA disposal.

2. Install separate interior vertical Dump Chute for TSCA Waste. Chute will be located near grid lines C1-D1 and the adjoining west building wall. Refer to the Chute sketch and typical plans shown in **Appendix D.** The TSCA Dump Chute is built up out of interlocking sections, 36 inches in diameter X 4 foot long, of durable plastic, and will be temporarily anchored to the floor and/or adjoining beam or girder. The chute will initially extend from the 6th floor to the 1st Floor, and will "land" the demolition rumble on a steel-plated area on the Loading Dock. A mini-containment will be constructed around the TSCA Dump Chute discharge end at the loading dock, to aid in containing dust from falling TSCA rubble (see sketch of mini containment included in **Appendix D**). Steel plate or built-up rubble will be employed at the discharge end of the TSCA chute to minimize cross-contamination of slabs below the chute discharge. All rubble will be sized to approximately 2 foot-minus and trimmed of reinforcing to enable insertion and smooth delivery through the chute and/or shaft. TSCA rubble will be sufficiently wet at time of delivery to chute opening and a mini containment dust control system **(Appendix D)** will be installed at ground level. In addition, the rubble can be misted at ground level, as necessary, to reduce dust generation from debris coming out of chute.

   Subtitle D waste will be sent down the existing freight elevator shaft, and will accumulate on the ground floor for disposal. The use of separate dump chutes for Subtitle D Waste and TSCA Waste will effectively isolate the TSCA Waste Stream from Subtitle D waste as it is transported from the respective floor undergoing demolition, to the ground floor. Additionally, locating the TSCA rubble stockpile in the loading dock will consolidate the TSCA debris in a central

stockpile (interior to the building) thereby avoiding the potential for contamination at the exterior of the building. Rubble will be sufficiently wet at time of delivery into chute opening so that additional dust control at ground level will not be required. Alternatively, Subtitle D waste may be directly deposited at the west elevation of the building, on a plated area, for accumulation and load out, depending on air sampling results.

Signage, and/or barrier tape or temporary fencing will be posted to enforce adequate set-back from the dump chute(s) to insure worker safety. Chutes will be inspected daily to verify soundness and durability. The top ("mouth") of the TSCA chute will be securely anchored with cabling and/or chain, and secured to existing structural beams and/or columns to prevent un-linking of sections. Chute sections will be inspected prior to start of shift, and daily during use to verify soundness.

Load-out of TSCA waste will be accomplished by opening a wall opening on the south and north walls, and routing trucks south to north along-side the loading dock, where truck will be loaded with the use of a skid-steer uni loader. Wall openings will be limited to a single column bay in width. In no circumstance will vertical load bearing columns be removed to facilitate load-out operations. Please refer to the Load-Out Sketch, **Appendix E.** Alternatively, trucks may enter the project from the north (as shown) and pull up along side the west side of the building for load out, depending on air sampling results during load out.

Trucks hauling TSCA Waste will be distinguished by use of a large "Lone Mountain – TSCA" symbol posted on the driver's side cab door. Trucks destined for Subtitle D landfill will have a large "Courtney Ridge – Subtitle D" symbol posted on the cab door. This will eliminate the potential for mistakes on load destinations. Signs will also be posted near the respective stockpiles to indicate "Lone Mountain" or "Courtney Ridge" so that drivers can concur with the loader operator prior to loading. Separate detachable buckets, or a suitable liner, or decontamination methods such as brooming shall be used on the loader bucket to eliminate cross-contamination of piles.

Scrim Material will be hung from truck-access wall opening(s) to mitigate the migration of dust outside the building (unless air-sampling results at the truck access wall openings indicate that dust migration at ground level during load out is within acceptable range of exposure). Scrim Material, if required, will be mounted on a dual rod and attached to the inside top of the wall panel, and raised and lowered on a rope and pulley system, as required for truck access.

The stockpile area for building debris is located at the elevated dock, located at the west-most bay of the building. The loading dock is elevated approximately 4 feet above the truck wheel elevation. Waste materials will therefore be effectively segregated from truck traffic, with the exception of any materials that are spilled during load-out. Spilled materials will be removed between truckloads, to eliminate tracking of truck tires through waste piles. Brooming of truck tires will be employed, as necessary, prior to off-haul of debris. Tarps will be used on all loads exiting the Wyandotte Project.

3. Sequencing of removal of TSCA Floor Areas and Subtitle D floor areas: Removal of the TSCA contaminated floor areas includes the associated beam and column assembly (as TSCA Waste). CWC will sequence removals of TSCA Floor areas as follows (please refer to the sketch located in **Appendix F.**

- Paint TSCA > or equal to 50 PPM area footprints
- Wet score-saw TSCA beams and girders on the outside limit of the beams and girders.
- Remove TSCA Slabs and junior beam assemblies (leaving associated TSCA beam and column grid standing). Deliver rubble to TSCA Waste Chute
- Remove Subtitle D floor slabs and associated beams and columns (leaving associated TSCA beam and column grid standing). Deliver rubble to Freight Elevator Chute.
- Remove TSCA beam and column grid. Deliver rubble to TSCA Waste Chute.

CWC will post-shore floors as necessary at interfaces between Subtitle D floors and TSCA Waste Floors, where removal limits intersect grid lines (example: 6th floor – Grid Line B3-B4). Refer to the illustration of a Post Shoring System in the **Appendix G.**

Sequencing removals in this manner will successfully isolate Subtitle D rubble from TSCA rubble, thereby minimizing cross-contamination of waste streams.

- Demolition of Building – Structural Floors

Demolition of upper floors will be generally accomplished using +/-16,000 pound mini excavators, as pictured in **Appendix H**. Excavators will be fitted with hydraulic breakers, which will fracture the floors and structure to small rubble, to fit easily into its respective chute or shaft for disposal. Skid-steer bobcats will be used to temporarily stockpile and transport rubble for disposal. Concrete from floor demolitions shall be sized to approximately 2 foot minus in maximum dimension, with average rubble approximating 6-8 inch size pieces. The mini excavator will operate from a bay adjacent to the bay that is being dismantled. The debris will fall from the bay being dismantled to the floor below it, and will accumulate only to the extent that the skid steer production rate allows, while keeping the height of the debris piles to under 1 to 2 feet thick. Bobcats will remove concrete rubble concurrent with demolition work, to minimize overloading of floors. Perimeter walls will be "chase-cut" with the excavator/breaker into 15 to 20 foot sections. These sections will then be pulled inward onto the floor to be further size-reduced and rubblized for removal. Where safety or procedural concerns, such as wall demolition, require floor-by-floor dismantlement in sizes exceeding +/- 2 foot maximum dimension, a load-absorbing bed of tires laid tread-to-tread and/or a +/- one foot-thick bed of +/- 8 inch minus load-absorbing rubble shall be placed in the footprint of the drop zone.

Inspections of the structural floors, columns and beams shall be conducted (at a minimum) prior to start of each shift, at lunch break, and at shift completion. Inspections shall also be made randomly at least twice daily, and prior to start of work on a new floor. Additional inspections may be conducted at the discretion of the supervising Foreman.

The excavators are track-mounted, thereby spreading their load over a comparatively large base (as compared with similar wheel-mounted machines). The implementation of 4' X 8' plywood will further spread load to surrounding floor slab/joist/beam support structure. The orientation of the mini excavator with respect to the floor joists shall be at a right angle, thereby assuring that the tracks of the excavator are never on fewer than two joists. To evaluate punching shear of the excavator tracks through the floor slab, AJ Miller performed caluculations attached in Appendix K, illustrating that even if the weight of the entire excavator was concentrated on 1 square foot of area, the track of the excavator would still not punch through the floor slab.

If supplemental shoring is required due to engineering concerns, CWC will install vertical post shoring. The shoring shown is capable of supporting up to 17,000 pounds live vertical load (per post-shore leg), and can be used to supplement the floor load carrying capacity, or augment loading capability based on design calculations. Shoring posts will be oriented to structural elements, i.e. beams and joists, and securely landed on matching beams/joists on the floor below. It is quickly installed or removed, using a screw-jack assembly located near the base of the unit. Reference Frame and Post Shore Detail in **Appendix G.** Shoring shall be used at columns where spalling of concrete has resulted in lack of confinement of reinforcing. In these cases, four shoring posts shall be installed abutting the spalled column on a north/south/east/west axis of orientation.

Based on a 150 pound per square foot allowable live load, each bay should be able to hold 55,000 pounds. The load imposed by the excavator is only 19000 pounds. To verify the adequacy of the building bays to withstand the excavator loads, two load tests will be conducted within the building. One load test will be conducted on a representative bay, that appears average in condition and thickness, and one load test will be conducted on a scarified area, that appears reduced in slab thickness. These test results will "bracket" the expected conditions encountered during the dismantlement. Load testing shall be accomplished by using 55-gallon drums filled with water, in a quantity not to exceed 1.25 times the weight of the mini excavator (23,750 pounds), positioned in the center of a typical structural bay. Deflection of the floor shall be measured prior-to and after loading barrels with water. Floors shall be inspected for cracking or spalling prior to loading water, and existing spalling (if any) shall be spray-painted for recognition. New spalling after loading shall be noted. If unacceptable deflection, spalling or cracking occurs as a result of loading, floors shall be fitted with one level of supplemental shoring prior to positioning the mini excavator on the floor. If no spalling or cracking occurs, no shoring shall be required.

After the building is reduced to a two-story structure (after removal of the 3rd floor), the remaining greater-than-50 ppm PCB contaminated areas will be removed on the First Floor. After the greater-than-50 ppm areas are cleared, the remaining less-than-50 PPM PCB contaminated building and foundation will be removed with heavy equipment. Heavy equipment will be staged "inboard" of the building, south and west of the structure, and will remove walls, floors columns and beams toward the interior of the job site, where materials will be further processed and loaded to truck.

Exterior scaffold and scrim assembly will deflect fly-rock to the base of the scaffolding, during perimeter wall removals, thereby eliminating the potential for rubble or fly rock impacting the public way. Scaffold and scrim will be erected on the north and east elevations. West and South elevations will be left open, due to the 40 foot and 60 foot setbacks, respectively, at these elevations. "No-Pass" zones will be maintained during wall removals on the west and south elevations, to manage the potential overhead injury at ground level due to falling rock.

- Substructures

Substructures include slabs-on-grade, column bases, perimeter footings and basement walls. Substructures will be excavated with use of 100,000 pound conventional excavator and bucket, and broken with hydraulic breaker. Broken rubble will be loaded directly to trucks and transported for disposal. Excavated uncontaminated soil will be utilized as backfill, and placed in uniform compacted layers, per specification. Basement walls will be removed to the extent that nearby utilities/roads are not subject to

undermining. Removal of basement suspended slabs will be preceeded by partial excavation at the exterior of basement walls, in areas where sloughing of retained soils may diminish or weaken adjoining areas designated to remain.

- Removal of PCB Contaminated Soils

Prior to excavation, PCB contamination areas will be delineated and clearly marked in the field. PCB impacted soils will be excavated with a wheel hoe and carefully stockpiled on visqueen to prevent cross-contamination of surrounding soils, and covered with poly and weighted down to prevent dust generation and contact with precipitation or runoff. Excavation will be accomplished in 4 foot lifts, sloped at a 1:1 angle. After four feet of excavation, the limits of contamination will be re-inspected, and adjustments made in horizontal or vertical area of excavation. Excavation will be continued in an open-cut configuration – either deeper or broader, depending on the limits of impacted soil, to the extent that undermining of utilities or roadways are not impacted.

Dust suppression during excavation activities will be implemented, as required, to minimize dust migration. Dust control will be by means of misting by hand-held hose. Water will be applied in a manner to minimize ponding or runoff.

Stockpiled materials shall be kept within the former building footprint, and kept off the leased parking lot. Stockpiled soils will be loaded into trucks for transport and disposed at Subtitle D landfill.

1.3 TEMPORARY FACILITIES

CWC has provided for the following Temporary Facilities:

- CWC Project trailer, including phone, fax, DSL connection, and conference facility.
- Port-a-Potty Facilities.
- Decontamination Trailer including crew locker room / change facilities, emergency showers and eyewash. Water supply shall be by temporary refillable storage vessel. Wash water shall be held and used as dust control water upon discharge.
- Temporary perimeter fence with gated entry.
- Temporary utility power hookup or generator.
- Perimeter fence as approved by KC MO Building as safety, Jersey Rail, Scaffold and Net, temporary signage. See **Appendix I** for temporary signage sketch.

Please see **Appendix J** for (1) the anticipated site set-up of Temporary Facilities, and (2) proposed Fencing and Control Plan, for on-site containment of Fly Rock during demolition.

1.4 STORM AND SURFACE WATER CONTROLS

Prior to the start of decontamination, and during demolition and clean up of the site, perimeter sandbags will be installed to divert the flow of surface water to existing drains and sumps. Perimeter sandbags will be

installed at fence line. As discussed, a provisional storm water drain system will be installed in the interior of the PCB Treatment Building – per the Storm Water Mitigation Plan shown in **Appendix C**.

1.5 WATER USE – METHODS AND MANAGEMENT

Water use during decontamination will be minimized to the extent that controlled dust mitigation is achieved, without runoff or ponding. Water for dust suppression (roads, demolition and felling of the structures) will be used sparingly, in a light mist, and will be applied in a method to minimize ponding and runoff. Water will be accessed via hose connected to the building fire system, or by water truck. Water applied by truck will be applied via spray bars, or hand held pressurized hose attached to the truck.

1.7 DOCUMENTATION AND ARCHIVING

CWC will manage all reporting, tracking, and retention of waste manifests and obtain Certificates of Disposal for wastes sent for disposal. CWC will track all other non-regulated wastes as a non-hazardous waste and prepare all non-hazardous waste manifests using Supervising Contractor-approved documents. CWC will track all other materials shipped from the site using bills of lading. Each non-hazardous waste manifest and bill of lading shall have a unique identification number. Copies of all records will be maintained on-site for Hard Hat's inspection.

1.8 STATUS REPORTING AND CLIENT INTERFACE

CWC shall create and maintain a schedule that details weekly paths with milestones, staff loading levels and weekly completion percentages. A two-week look-ahead schedule will be presented at the regularly held weekly meetings between project site staff and the Supervising Contractor's Management Team. Schedule will be updated weekly and presented at the weekly Scheduling Meeting.

Weekly meetings will provide the forum for discussion on Project changes, cost issues, material tracking, and tracking of client-driven requests for information, schedule updates, billing, percentage completion of scheduled activities, and similar administrative concerns of the Project.

RFI forms, Change Request Forms, Material Tracking Forms and similar shall be drafted and submitted at the Project kick-off meeting, and shall become a part of this Site Specific Work Plan.

September 15, 2004

Mr. Bob Feild, Project Manager
U.S. EPA – Region VII
Superfund Division – Missouri/Kansas Remedial Branch
901 N. Fifth Street
Kansas City, KS 66101

RE: Responses to Comments –
Black & Veatch September 2, 2004
Revision 2 of RA Contractor Draft Procedures

Dear Mr. Feild:

We received the referenced Black & Veatch comments on September 3, 2004 and discussed them with Black & Veatch on September 8, 2004. We appreciate your willingness in allowing us to work through these outstanding structural comments directly with Black & Veatch. As a result, we believe that resolution was reached. It is also our understanding that the August 17, 2004 USEPA comments and our corresponding August 27, 2004 responses are generally acceptable.

To document the resolution of the Black & Veatch comments, we offer the following responses. For clarity, we have repeated the Black & Veatch comment in bold, along with our corresponding response.

Black & Veatch Comments

1. <u>Response to BVSPC Comment 1.</u> **We still believe that there is an inconsistency between the H&S requirements proposed by Cleveland Wrecking Company (CWC) in their draft work plan and the final design prepared by Burns & McDonnell. Item Number 2 of CWC's Dust Control Plan indicates that worker exposures should be less than 1 mg PCB per cubic meter per 8-hour average. This is the OSHA Permissible Exposure Limit (PEL) for Aroclor 1242. Paragraph 6.4, Page 15, First Bullet, of the Dust Control and Air Monitoring Plan prepared by Burns & McDonnell (Attachment 7 of the Final Design) indicates that worker exposure should not exceed 0.0005 mg PCB per cubic meter of air. This is one-half the NIOSH recommended exposure limit and the Burns & McDonnell plan indicates that this requirement is also applicable to workers and not just the general population. The OSHA PEL for Aroclor 1254 is 0.5 mg PCB per cubic meter of air which is also the concentration required in the**

Burns & McDonnell H&S plan to upgrade from modified Level D protection to Level C protection.

1. As indicated in our August 27, 2004 response letter, the CWC RA Procedures document is for worker's procedures, while the Burns & McDonnell DCAMP is for public exposure. However, Black & Veatch's comment regarding the OSHA PEL of 0.5 mg PCB per cubic meter of air is relevant. The CWC Procedures, Revision 3 has been changed to reflect this.

2. Response to BVSPC Comment 2. The structural calculations performed by Heausler Structural Engineers have been referenced but still have not been provided for review.

2. The Heausler Report, included as Attachment 11 to the Final Design, was intended as a feasibility-type document to evaluate the top-down dismantlement approach and provide potential RA Contractor bidders a structural opinion of the building condition. As such it will not be relied upon for RA Contractor procedures. Rather, the CWC Structural Engineer, A.J. Miller, is providing relevant structural guidance and calculations for the dismantlement procedures. No further submittals from Heaulser are anticipated.

3. Response to BVSPC Comment 3. See Response to BVSPC Comment 4.

4. Response to BVSPC Comment 4. The contractor should be specific in the analysis of the debris loading to avoid overloading the structure and to help field personnel determine when shoring is needed. In this specific case, overloading may result in sudden failure. Please refer to the *Urban Search and Rescue, Field Operation Manual, by the US Army Corps of Engineers* for further guidance.

4. The procedures to be used by CWC include use of a mini-excavator with breaker attachment to break up the floor slabs and a bobcat-type skid steer to load out the debris. The mini-excavator will operate from a bay adjacent to the bay that is being dismantled, and will break the slab into rubble with an average of +/-6-8" sized pieces. It is anticipated that pieces of concrete no greater than +/- 2' maximum dimension will be produced. The debris will fall from the bay being dismantled to the floor below it, and will accumulate only to the extent that the skid steer production rate allows, while keeping the height of the debris pile to under 1-2 feet (approximately). The load imposed by the debris in this manner is less than the load imposed by the excavator. Therefore, the calculation for the excavator represents a conservative scenario for load capacity of the floors. Where safety or

procedural concerns require floor-by-floor demolition materials be dismantled in sizes exceeding +/- 2 foot maximum dimension, a load-absorbing bed of tires laid tread-to-tread and/or a load-absorbing bed of 8-inch minus rubble placed no greater than 1 foot thick, shall be employed in the footprint of the drop zone, as necessary. The CWC Procedures have been revised to reflect this.

5. Response to BVSPC Comment 5. **The structural engineer needs to further define "reducing debris impact to small and reasonable levels." Notations such as "small and reasonable " is inordinately vague and does not lend guidance to the demolition contractor. The risk that should be guarded against is a progressive uncontrolled structural collapse. Acceptable calculations can be developed to quantify the maximum weight of debris, drop height, and impact energy mitigation methods.**

5. As mentioned in #4 above, the size of the debris will be limited by the process used to break up the concrete. Therefore, impact loads are not expected to cause structural instability. However, inspections made by CWC on a routine, daily basis will be completed to ensure that areas which are noted to be cracking or spalling can be shored as necessary, and limited or restricted as debris accumulation/impact areas. In addition, the impact from concrete rubble will be lessened by the slight accumulation of the rubble, which will act to spread the load on the floor below. The CWC Procedures have been revised to reflect these issues.

6. Response to BVSPC Comment 6. **The tracks of the excavator are 6'-8 3/4" in length from contact point to contact point. The joists are typically spaced at 4'-8 1/4". Track excavators impart a triangular load distribution on the supporting surface. The maximum corner load should be determined for the selected boom of the Link-Belt excavator, and submitted by the manufacturer. The maximum corner load should be compared with the capacity of the supporting slab. There is no method presented of assuring set up and distribution of the tracks over 2 joists; therefore slab punching shear should be evaluated. There is no method submitted to lock out the bomb swing to 15 degrees from the center axis of the excavator. Punching shear is a catastrophic sudden failure mode. Great care should be exercised to assure mitigation of punching shear. Steel plates will add to the dead load and decrease elemental capacity of the structure. Steel plates will not significantly affect slab punching shear capacity, flexural capacity, or joist shear capacity. Steel plates will only affect local capacities on yielding surfaces such as soil.**

6. This issue was considered in A.J. Miller's evaluation. The punching shear was checked for a corner load on the excavator equal to the excavator weight distributed on a 1' x 1'

area. Maximum pressure under this scenario was estimated to be 48 psi, which is far below the likely load capacity of the concrete floors. In addition, based on the geometry of the slab/joist/beam configuration, the tracks of the excavator are never on fewer than 2 joists, and punching shear through the slab is not likely. Steel plates will not be used, and this reference has been removed from the CWC Procedures. The CWC Procedures have been revised to discuss the punching shear issue.

7. No response necessary; original response accepted.

8. No response necessary; original response accepted.

9. <u>Response to BVSPC Comment 9.</u> Because of the structure's diminished capacity due to deterioration and lack of confinement in the columns, the structural calculations should mirror the actual conditions. It is unclear whether these factors were considered in the calculations because the calculations have not been submitted for review. If conditions are such that calculations cannot be performed to predict structural behavior with a degree of assurance, load testing should be done in accordance with ACI 318-02, Chapter 20 - Strength Evaluations of Existing Structures.

9. The diminished capacity of the structure was considered. For instance, based on a 150 psf allowable live load, each bay should be able to hold approximately 55,000 lbs. The load imposed by the excavator is only 19,000 lbs. The actual load capacity of a representative bay will be evaluated by load testing with water barrels. Alternatively, the bays could be shored to ensure adequate load capacity. To address the lack of confinement in the columns, a shoring post will be used next to each suspect column. As the building comes down, the load required to be supported will be diminished, as floor after floor is removed. The CWC Procedures have been revised to discuss the load capacity, load testing and shoring.

10. No response necessary; original response accepted.

The CWC Procedures, Revision 3, is attached. We trust that these responses address Black & Veatch's concerns and questions and look forward to beginning the work. Please issue a Notice-to Proceed at your earliest convenience, and we will schedule a Pre-Construction meeting in accord with the AOC requirements.

Again, we thank you and Black & Veatch for a speedy review and willingness to talk through the comments and bring to resolution.

Sincerely,

Robert C. Beck
Respondents Project Coordinator

Attachments: CWC Procedures, Revision 3

cc: Tom Blair – Hard Hat Services, Inc.
Jeff Droubay – Cleveland Wrecking Company

August 27, 2004

Mr. Bob Feild, Project Manager
U.S. EPA – Region VII
Superfund Division – Missouri/Kansas Remedial Branch
901 N. Fifth Street
Kansas City, KS 66101

RE: Administrative Order on Consent (AOC)
CERCLA Docket No. 07-2002-0128
PCB Treatment Inc.
Response to EPA Comments on
RA Contractor Draft Work Plan
Submitted July 29, 2004

Dear Bob:
We are in receipt of your August 17, 2004 comments regarding the referenced documents. We appreciate your quick turn-around of these documents. Please consider this response letter addressing each of the comments. In responding to your comments, we would like to also stress that the Cleveland Wrecking Company (CWC) Work Plan is a Contractor-produced document that amends the Final Design and associated Plans. It is intended to satisfy a technical submittal requirement cited in Specification Section 02220, Paragraph 1.03, D., "Dismantlement Methods". It is not a stand-alone document, and is not intended to address every required task, but to add detail to specific RA Contractor procedures. This Work Plan will serve as an amendment to the Final Design, in accordance with Section 1.3.4 of the Final Design, and will be used in conjunction with the Final Design and Supporting Plans.

For clarity, we have repeated your comment in bold, followed by the corresponding response.

EPA COMMENTS
EPA comments on draft work plan submitted by Cleveland Wrecking Company for controlled demolition of 2100 Wyandotte PTI facility:

1. Revise language under Engineering Design (page 12) to specifically state what work was performed to determine the reinforcement in floors and structural frames. It is unclear whether certain work was performed or is being proposed.

1. To evaluate the reinforcement in the building, the original design drawings were obtained and reviewed as part of the Final Design. The Structural Analysis conducted by Heausler Structural Engineers included in the Final Design outlines the measures taken to

evaluate the structural integrity of the building. CWC then performed additional intrusive engineering work (i.e. destructive testing) in order to evaluate the existing structural condition of the building as it relates to their planned procedures for dismantlement. The CWC Work Plan has been revised to state that destructive testing was performed.

2. The work plan should include the criteria to be applied to collected stormwater prior to discharge (page 13, number 5) and describe in detail the holding and testing procedures prior to discharge.

We agree that discharge criteria for stormwater are important. Please be advised that the Wyandotte Design, submitted as Final in April, 2004 provides details requested by this comment. Specifically, see Section 9.1.9 of the basic document, Section 4.0 of the Field Sampling Plan, and Specification Section 02140.

3. Discharge to the sewer system needs to be coordinated with the City.

We agree that discharge to the sewer system needs to be coordinated with the City. Please be advised that the Wyandotte Design, submitted as Final in April, 2004 provides details requested by this comment. Specifically, see Section 9.1.9 of the basic document, describing in the context of the entire Section 9.0, how coordination with the City will be done as a result of the permitting equivalency process.

4. The work plan appears to propose use of untreated collected stormwater that does not meet discharge standards for dust control in lieu of treatment (page 13, number 7). The plan should clarify how this untreated water will be used and controlled. Untreated water that fails discharge criteria should not be used for dust suppression for building elements that are destined for subtitle D disposal.

To our knowledge, there are no discharge standards for dust control and there is no basis for the possible effects of untreated water coming into contact with building surfaces or debris with less than 50 ppm PCBs. Logically, the untreated water will have already come into contact with said surfaces and debris by the time the water is collected. The only standards available are those that exist for discharge to the sanitary sewer, and re-use of water for dust control should not be considered discharge. It is our intent to manage the collected water in accordance with Specification Section 02140, Section 4.0 of the Field Sampling Plan, other applicable citations in the Wyandotte Design dated April, 2004, and supplemental procedures provided by CWC.

5. The work plan should present and discuss OSHA requirements for worker protection and how the proposed Dust Control Plan meets these requirements.

Details on the Dust Control monitoring requirements are included in Attachment 7 of the Final Design, the Dust Control and Air Monitoring Plan. Details on worker protection will be in the CWC Health and Safety Plan, which at a minimum, must meet the requirements of the Health and Safety Plan included in Attachment 5 of the Final Design.

6. Under Segregation of Waste Streams (page 15, number 1), the work plan states that drawing C3 describes the sections of floor areas that are "anticipated" for removal as TSCA waste. Why are these sections only anticipated for removal as TSCA wastes? Will additional characterization be performed to define which materials are actually to be managed as TSCA wastes?

The original text used a poor choice of words. Text indicating that sections of floor area "anticipated" for removal has been revised to indicate the floor sections are "designated" for removal. No additional characterization during dismantlement is planned.

7. Under Segregation of Waste Streams (page 16, number 2) the plan describes using built up rubble for mini-containment to contain dust from falling rubble. The work plan should better describe how this system will prevent cross-contamination of Subtitle D demolition waste.

This section of the Work Plan has been clarified to describe segregation of Subtitle D Demo waste from TSCA Waste. As described in the CWC Work Plan Page 16, No. 2, to positively segregate the TSCA waste from the Subtitle D waste, the TSCA waste will be delivered to ground level via a chute system, and the Subtitle D waste will be delivered to ground level via the existing elevator shaft(s), which are located separately within the building. Additionally, as described in the Final Design, the TSCA waste will be painted a bright, distinguishable color, and different trucks will be used as described in the CWC Work Plan. Dust will be controlled through the use of water mist on the debris, water mist at the chute system, and a mini-containment scrim system, as described in the revised CWC Work Plan.

8. The plan (page 16, number 2) describes that the rubble will be sufficiently wet at time of delivery to the chute opening so that additional dust control at ground level will not be required. It is unclear how the dust that is generated during impact with the steel-plated area, or other rubble, after falling up to six floors, will be controlled.

Dust generation from chute-delivered debris will be mitigated by initial wetting during demolition. A mini containment will also be erected at the TSCA dump chute discharge area. Additional dust suppression can be achieved by application of mist at the landing area, as required. The Work Plan has been modified to this effect.

9. The work plan should include dust suppression, as required, during removal of PCB-contaminated soils (page 18).

Dust suppression through the use of water misting during soil removal has been added to the Work Plan.

10. The work plan does not describe disposal requirements for PCB-contaminated soils.

Please be advised that the Wyandotte Design, submitted as Final in April, 2004 provides details requested by this comment. Specifically, see Specification Section 02205, Paragraph 1.01, C., which states that the soil and associated ground surface materials will be direct-loaded and disposed of based on "as-found concentrations." In addition, since the "as-found concentrations" are less than 50 ppm PCB, Table 3-1 in the basic design document and Table 2206-1 in the Specifications describe that this material will be disposed of as Subtitle D waste.

11. A paragraph is repeated in its entirety in Section 1.7.

This paragraph was repeated in error, and has been deleted.

12. The load out sketch states that alternately trucks could enter through a wall opening in the north wall of the building. Would removal of interior and exterior wall(s) to allow trucks to enter the dock area from the north or the south affect the structural integrity of the building?

If this option is used, only non-structural wall elements will be removed for truck access. Existing beam and column structure will be preserved; non-structural brick infill will be removed for access. Only one brick infill panel will require removal, per wall elevation (i.e. one panel at the south end, and one panel on the north end), and as specified in the Work Plan. Please note that the north wall elevation already has existing windows and other non-structural elements at the potential location of panel removal.

13. The plan provides only minimal information about how traffic will be controlled and routed during implementation.

We agree that the traffic control and haul routes are important for the success of this project. Please be advised that the Wyandotte Design, submitted as Final in April, 2004 provides details requested by this comment. Specifically, the Contract Drawing Sheet entitled "INDEX, LOCATION MAP AND HAUL ROUTES" provides as much information as is possible until such time that the permitting equivalency process with the City determines the actual traffic control and routing that will be allowed. Also please note the note on the haul route map that states "City may change haul route any time due to other construction in area."

14. The work plan should specify any elements of the Wyandotte Design document that are incorporated into the CWS work plan. Certain elements required in the Order are not included in the work plan.

As mentioned above, this CWC work plan was intended as an addendum to the Final Design, not in place of the Final Design. Those elements of the work specified in the Final Design, as required by the AOC, are still applicable. The CWC Work Plan is provided as additional information on procedures that CWC intends to use to implement the Final Design.

15. The work plan should describe how wall openings allowing truck access will be created and maintained to prevent release or perceived release of contaminated materials from the facility. The plan should describe in detail the measures that will prevent trucks that enter areas where contaminated materials are handled from tracking or carrying contaminated materials onto public roadways. Will truck or wheel washing be performed? Will loads be covered prior to exiting building?

The CWC Work Plan has been revised to more clearly explain how the truck access and associated dust and track-out will be controlled. See revised Page 17 of Work Plan.

16. Appendix I map appears to mislabel Southwest Boulevard. Considerable more detail is needed in this figure.

Appendix I map has been revised and attached. Please refer to the Legend on Page 3 of Appendix I - this legend, together with the revised map, designates traffic signage locations.

BLACK AND VEATCH COMMENTS

General Response: Many of the Black and Veatch comments have to do with the Structural analysis conducted by both CWC and Heausler Structural Engineers. As is often the case, different engineers have differing opinions. However, Heausler Structural Engineers and AJMiller, CWC's Missouri Engineer, have agreed on the structural analyses and concepts. In order to resolve these comments fully with the EPA and Black and Veatch structural engineers, we recommend that a meeting be held and that the specific procedures and structural concerns be discussed. In order to be responsive to your comments, we also offer the following responses.

1. **Dust Control Plan, Page 14. Item Number 2 indicates that worker exposures should be less than 1 mg PCB per cubic meter per 8-hour average. However, Paragraph 6.4, Page 15, First Bullet, of the Dust Control and Air Monitoring Plan prepared by Burns & McDonnell (Attachment 7 of the Final Design) indicates that worker exposure should not exceed 0.0005 mg PCB per cubic meter of air. The discrepancy should be resolved.**

In the CWC Work Plan, the specific procedures CWC intends to use are outlined. The requirements for the workers (who will be trained in HAZWOPER and using PPE) are different than the requirements for protection of the surrounding public (who have not been trained and do not have PPE). Therefore, the exposure limits for workers are different than the exposure limits for public. Worker's exposure is the main concern in CWC Work Plan (and will also be in CWC Health and Safety Plan). Public exposure is the basis for the Dust Control and Air Monitoring Plan (DCAMP) limits. It should also be noted that the DCAMP exposure limit for emissions from the perimeter of the site is 0.001 mg PCB per cubic meter of air, but that the voluntary action level is one-half that limit, or 0.0005 mg/m^3. The DCAMP Paragraph 6.4, Page 15 text indicates that workers

will be notified when emissions exceed this voluntary level. This notification, however, will be so that they can take corrective measures to ensure emissions above 0.001 mg/m^3 do not leave the site, not for worker protection (that will already be in appropriate PPE).

2. **Attachment 11, Structural Analysis, Burns & McDonnell's Final Design dated April 2004; Computational Analysis. The Structural calculations that were performed by Heausler Structural Engineers for review of the load capacity of the building were not submitted and should be provided for review. (See Black & Veatch Comment 1 on Attachment 11 of the draft design.)**

Heausler Structural Engineers performed structural calculations for the floor loading capacity. These calculations were based upon uncertified drawing records and assumptions based upon observed conditions. Furthermore, the calculations use typical building code methodologies. These methodologies are intended for normal occupancies and for new construction with new materials and cannot be directly related to demolition and construction loadings and procedures without engineering judgment. The purpose of the calculations was intentionally limited to the augmentation of the engineer's judgment only. The Heausler Structural Analysis was conducted, as required by the AOC, to evaluate whether a top-down dismantlement of the building was feasible, and if so, what considerations should be used during the dismantlement.

3. **Attachment 11, Structural Analysis, Burns & McDonnell's Final Design dated April 2004; Recommendation 11 in Heausler Structural Engineers' letter report. An estimated live load capacity of the existing floors should be provided. (See Black & Veatch Comment 2 on Attachment 11 of the draft design.)**

We estimated the floor load capacity to often be 150 psf or much more (building code, normal occupancy) in locations which are in good condition and built in a similar fashion to the drawings. Locations which have been significantly scarified, composed of weak or water damaged concrete, or not built as per the drawings may have a lesser load capacity. It should be noted that for demolition operations, it is reasonable to use a construction equipment and debris loading which is higher than the normal occupancy live load. In summary, a certified live load capacity for demolition operations has not been determined, and there is inadequate information to significantly improve that knowledge. We recommend cautious field operations and observations during demolition, which CWC has intended through the use of controlled dismantlement procedures and shoring as necessary.

4. **Attachment 11, Structural Analysis, Burns & McDonnell's Final Design dated April 2004; Recommendation 11 in Heausler Structural Engineers' letter report. The weight of the rubble debris that will be allowed to be stacked on the floors should be specified. The areas of the floors that are allowed to have rubble debris should be defined on a bay-by-bay basis.**

In the Heausler Structural Engineers report, we recommended that debris not be stacked greater than 1' on average per bay. This was intended to be a guide for bidders to initially

assess the likelihood and need for shoring equipment and labor. During actual demolition the contractor can observe and reassess the capacity of the floor due to debris and equipment loading and the need for plating and shoring. To evaluate the building floor-by-floor, bay-by-bay, is outside the scope and intent of the Structural Analysis.

5. **Attachment 11, Structural Analysis, Burns & McDonnell's Final Design dated April 2004; Recommendation 11 in Heausler Structural Engineers' letter report. The rubble debris size, weight, and the maximum drop height of the debris during demolition should be estimated. Impact mitigation measures, like stacking tires below the floor that is being demolished to reduce impact loads, should be discussed if necessary. (See Black & Veatch Comment 3 on Attachment 11 of the draft design.)**

We agree that the damaging impact of debris should be avoided or mitigated. The Heausler Report recommended reducing debris impact to small and reasonable levels.

6. **Section 1.2.3, Demolition; Engineered Design Bullet, Page 12 of Cleveland Wrecking Company's Draft Work Plan. The maximum load for the 1600 Quantum Series articulating excavator should be defined with the loaded arm at an angle from longitudinal centerline that produces the maximum corner load. This load should be considered for the structural analysis of the supporting floor.**

The demolition is performed with the excavator operating in the bay behind the bay that is being demolished. The tracks of the excavator are set parallel to the girders. Thus, the tracks are supported by several joists. The excavator demolishes a limited area of the floor then, travels ahead and demolishes the adjacent area of floor. This procedure continues until the entire bay is demolished. The boom angle (in the horizontal direction) is limited to approximately 15 degrees from the "over the side" position. This results in a track loading that is essentially uniform. Conservatively, 75% of the operating load is attributed to either track. The floor framing was reviewed and found to be adequate for this loading. The CWC analysis reviewed two conditions a) 75% of the weight of the excavator applied to one tractor and b) with the load at the toes of the tractors. This reasonably envelopes the loading conditions, especially since the payload is a small percentage of the total excavator weight. We agree that there are numerous conditions which could locally increase the load, while decreasing it at other locations. The CWC report recommended using steel plate to spread out the load in areas that are questionable.

7. **Section 1.2.3, Demolition; Demolition of Building-Penthouse Bullet, Page 15 of Cleveland Wrecking Company's Draft Work Plan. A detailed demolition plan for the chimney on the southwest corner of the building should be developed.**

The chimney at the southwest corner will be demolished by hand, similar to the elevator penthouse demolition. The chimney will be removed with caution and measures will be taken to avoid collapse and falling debris. The Work Plan has been revised to reflect this.

A. J. MILLER
& ASSOCIATES
STRUCTURAL ENGINEERING CORPORATION
5588 FREMONT STREET
OAKLAND, CALIFORNIA 94608
(510) 655-8401
FAX 655-8425

W Y A N D O T T E B U I L D I N G D E M O L I T I O N
Memorandum 04211-04
September 9, 2004

CLEVELAND WRECKING CO.
628 East Edna Place
Covina, CA
91723
FAX 626-967-1479

Attention: Jeff Droubay

Subject: Concrete Floor Demolition

Pursuant to our conference call yesterday, we offer the following calculations regarding "punching shear". Conservatively, we have considered 100% of the operating weight concentrated at one corner of one track. The calculated punching shear under this extreme condition is approximately 49 psi. Again, conservatively assuming that the concrete strength is only 2000 psi, the allowable value is 89 psi. Thus, the actual punching shear is only 55% of the allowable value, for this very extreme circumstance. Therefore, we believe that the excavator operating is safe and that the excavator will not punch through the slab.

REGISTERED PROFESSIONAL ENGINEER
A. J. MILLER
No. 2041
Exp 9-30-05
STRUCTURAL
STATE OF CALIFORNIA

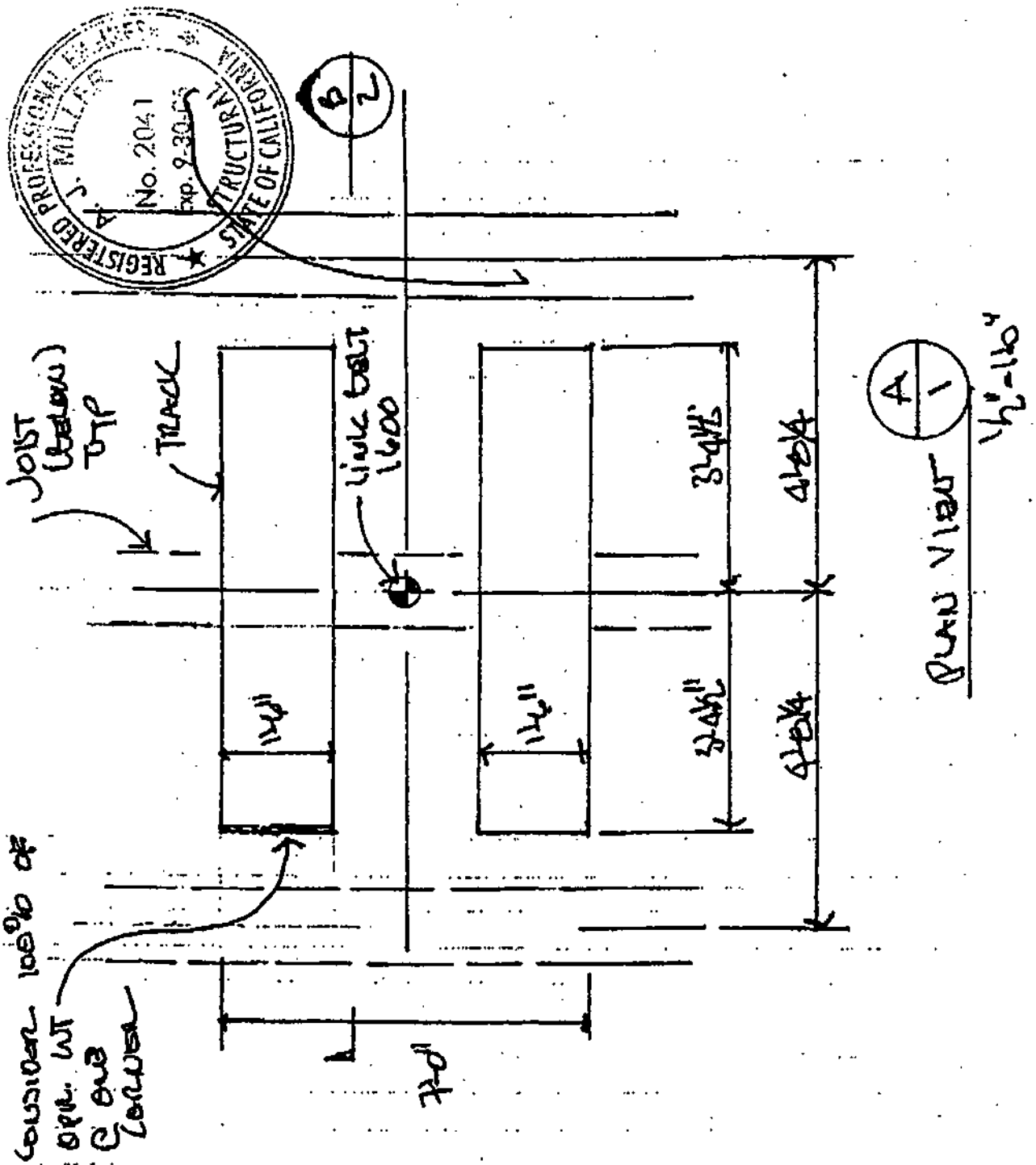
A.J. Miller

A.J. MILLER & ASSOCIATES
STRUCTURAL ENGINEERING CORPORATION
5586 FREMONT STREET • OAKLAND, CALIFORNIA 94608 • (510) 655-6401 • FAX 655-8425

COMPUTATIONS NO. 1 OF ____ SHEETS

DATE 8 SEPT 04 CLIENT CLEVELAND IRONWORKS JOB NO. 0411

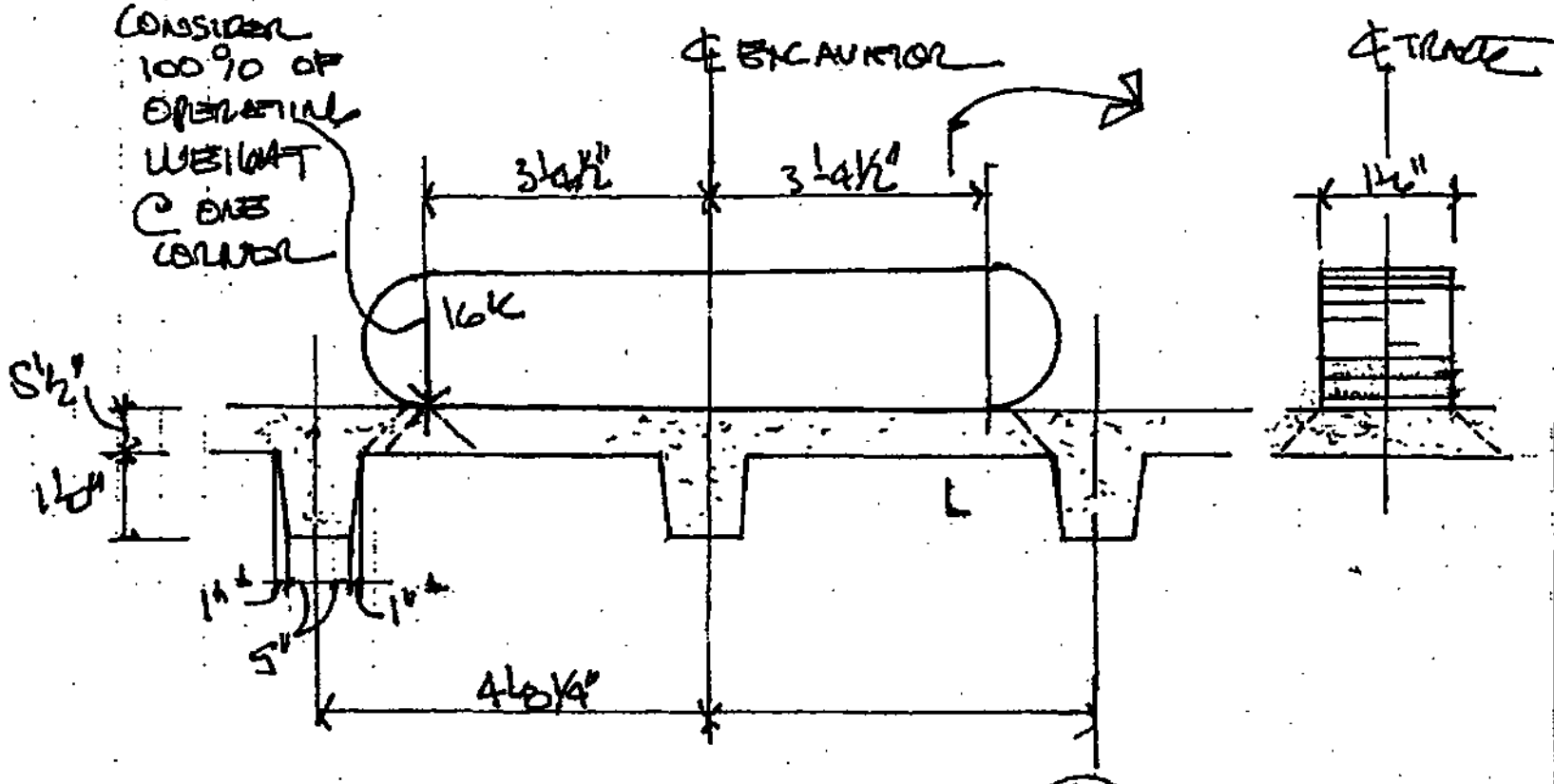
BY ____ CHK ____ PROJECT WYNDOTTE



A.J. MILLER & ASSOCIATES
STRUCTURAL ENGINEERING CORPORATION
558 FREMONT STREET · OAKLAND, CALIFORNIA 94608 · (510) 655-8201 · FAX 655-8425

COMPUTATIONS

BY CHK PROJECT Livermore Outlets DATE 8 Sept 04 CLIENT Cleveland Cliffs JOB NO. 04111 NO. 7 OF SHEETS



SECTION THRU JOINTS B/2

CONSIDER 16K AS LINE LOAD

10'

1"

$A_{PAD} = ((18+5.5)+(1+5.5))2\times5.5$

$= 330\ in^2$

$N_{PUNCHING} = \frac{16000}{330} = 48.5\ psi \rightsquigarrow$ ALLOWABLE $V_P = 2(f'_c)^{1/2}$

$= 110\ psi$ (3000 psi)

$= 99\ psi$ (2000 psi)

Review Comments
Revision 2 of Draft Work Plan for Wyandotte Building Demolition
PCB Treatment, Inc. Site
Kansas City, Missouri
September 2, 2004

BVSPC's Specific Comments to Responses in August 27, 2004 Letter from Robert Beck

1. Response to BVSPC Comment 1. We still believe that there is an inconsistency between the H&S requirements proposed by Cleveland Wrecking Company (CWC) in their draft work plan and the final design prepared by Burns & McDonnell. Item Number 2 of CWC's Dust Control Plan indicates that worker exposures should be less than 1 mg PCB per cubic meter per 8 hour average. This is the OSHA Permissible Exposure Limit (PEL) for Aroclor 1242. Paragraph 6.4, Page 15, First Bullet, of the Dust Control and Air Monitoring Plan prepared by Burns & McDonnell (Attachment 7 of the Final Design) indicates that worker exposure should not exceed 0.0005 mg PCB per cubic meter of air. This is one-half the NIOSH recommended exposure limit and the Burns & McDonnell plan indicates that this requirement is also applicable to workers and not just the general population. The OSHA PEL for Aroclor 1254 is 0.5 mg PCB per cubic meter of air which is also the concentration required in the Burns & McDonnell H&S plan to upgrade from modified Level D protection to Level C protection.

2. Response to BVSPC Comment 2. The structural calculations performed by Heausler Structural Engineers have been referenced but still have not been provided for review.

3. Response to BVSPC Comment 3. See Response to BVSPC Comment 4.

4. Response to BVSPC Comment 4. The contractor should be specific in the analysis of the debris loading to avoid overloading the structure and to help field personnel determine when shoring is needed. In this specific case, overloading may result in sudden failure. Please refer to the *Urban Search and Rescue, Field Operation Manual, by the US Army Corps of Engineers* for further guidance.

5. Response to BVSPC Comment 5. The structural engineer needs to further define "reducing debris impact to small and reasonable levels." Notations such as "small and reasonable " is inordinately vague and does not lend guidance to the demolition contractor. The risk that should be guarded against is a progressive uncontrolled structural collapse. Acceptable calculations can be developed to quantify the maximum weight of debris, drop height, and impact energy mitigation methods.

6. Response to BVSPC Comment 6. The tracks of the excavator are 6'-8 3/4" in length from contact point to contact point. The joists are typically spaced at 4'-8 1/4". Track excavators impart a triangular load distribution on the supporting surface. The maximum corner load should be determined for the selected boom of the Link-Belt excavator, and submitted by the manufacturer. The maximum corner load should be compared with the capacity of the supporting slab. There is no method presented of assuring set up and distribution of the tracks over 2 joists; therefore slab punching shear should be evaluated. There is no method submitted to lock out the bomb swing to 15 degrees from the center axis of the excavator. Punching shear is a catastrophic sudden failure mode. Great care should be exercised to assure mitigation of punching shear. Steel plates will add to the dead load and decrease elemental capacity of the structure. Steel plates will not significantly affect slab punching shear capacity, flexural capacity, or joist shear capacity. Steel plates will only affect local capacities on yielding surfaces such as soil.

7. Response to BVSPC Comment 7. The response is acceptable.

8. Response to BVSPC Comment 8. The response is acceptable.

9. Response to BVSPC Comment 9. Because of the structure's diminished capacity due to deterioration and lack of confinement in the columns, the structural calculations should mirror the actual conditions. It is unclear whether these factors were considered in the calculations because the calculations have not been submitted for review. If conditions are such that calculations can not be performed to predict structural behavior with a degree of assurance, load testing should be done in accordance with ACI 318-02, Chapter 20 - Strength Evaluations of Existing Structures.

10. Response to BVSPC Comment 10. The response is acceptable.

APPENDIX A

THE STANDARD OF EXCELLENCE

07/07/2004

HOME
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ROLL IT RIGHT
SCAFFOLDING
SHORING
FORMING
CONTAINMENT
SERVICES
PROJECTS
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LINKS
LOCATIONS
LITERATURE
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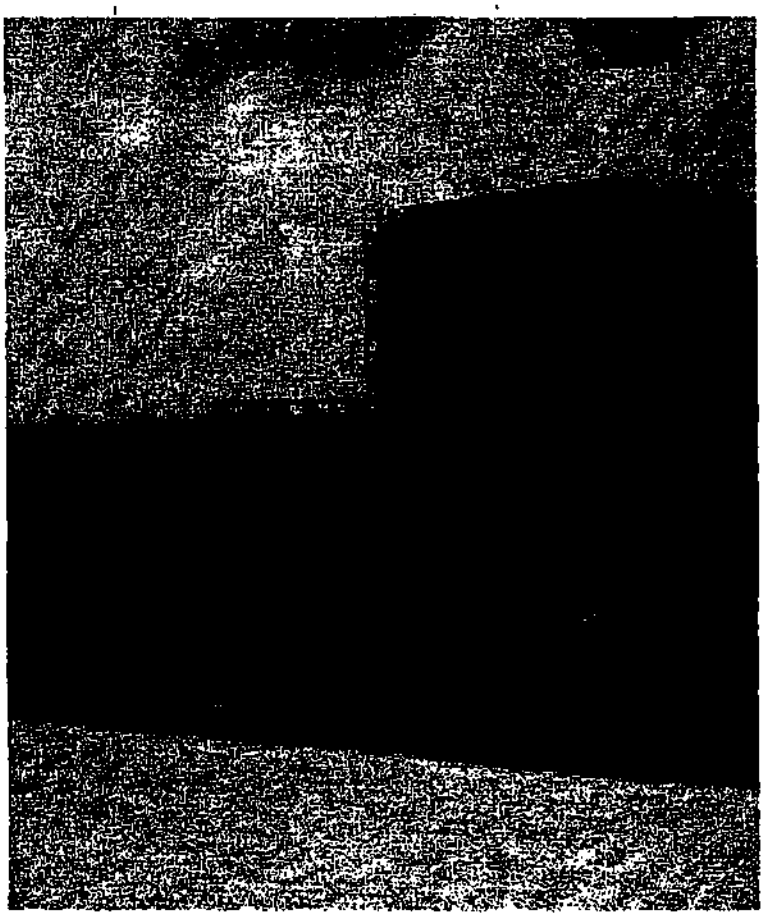
[redacted]



THE STANDARD OF EXCELLENCE

07/07/2004

HOME
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SHORING
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Scaffolding

Waco® is America's leading brand of scaffolding products and services. Our frame, tube and clamp and system scaffolding have been found on jobsites of all sizes for over 55 years. We manufacture and market thousands of scaffolding products and accessories for any size interior or exterior access application. Rent, lease or purchase, we provide scaffolding solutions along with full design, project engineering, erection and dismantling. We also provide detailed training on the proper handling and installation of all our access products that's recognized as one of the best programs in the industry today.

Waco® Red™ and Waco® Blue
Designed to meet a wide range of access needs both large and small.

Fastube®
Ideal scaffolding solution for access projects that require greater flexibility and maneuverability.

Wedgelok™
Waco's patented industry leader in system scaffolding. Waco® also provides a complete line of modular, suspended and special design scaffolding products for unique project applications.

Spec-d Line Frames
Spec-d Line scaffolding frames are cost-efficient, designed to meet Waco's rigid quality specifications, 100% compatible with other Waco® branded frames and backed by the same extensive guarantee found on all Waco® products.

Waco® also provides fixed and modular suspended scaffolding and Expresscaf our lightweight fast erection scaffolding system.

Request Literature

Guide to Scaffolding


Waco® Red™


Waco® Blue

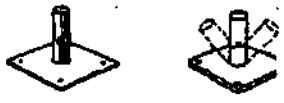
WACO RED Scaffold Frames

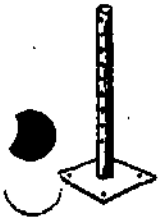
STAIRWAY SIDE OF YOUR JOB WILL LOOK SIMILIAR TO THIS PICTURE. (HOPE IT WILL FAX)

ADJUSTING SCREWS

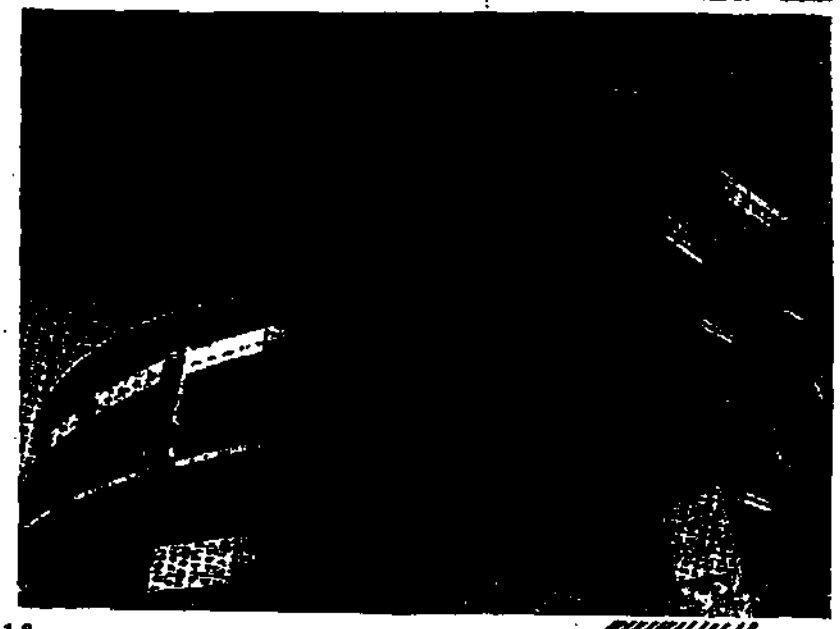
Model No.	Description
0306-00	Socket type for use with caster or base plate — 2(long, 18" screw adjustme
0305-18	With baseplate — 21" for 18" screw adjustment

BASE PLATES

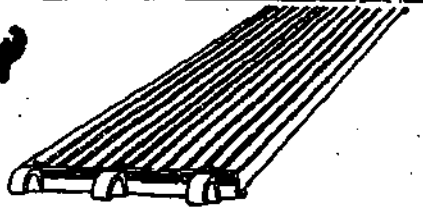




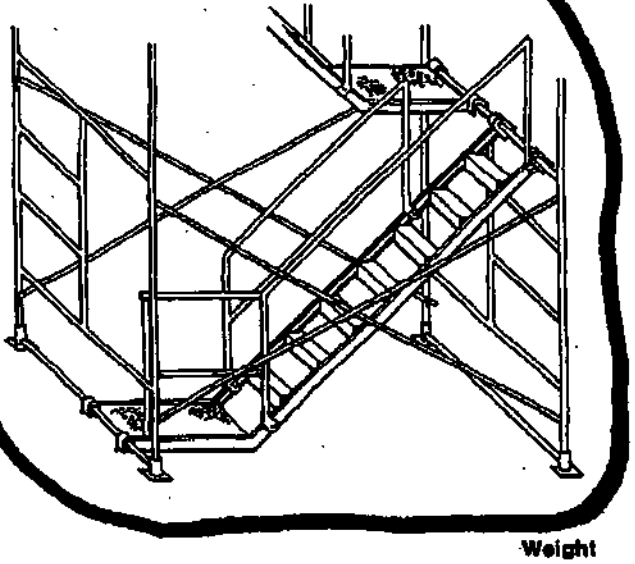
1924-00	5" x 5" plate with 24" extension (adjusts in 3" increments	
0300-00	5" x 5" standard stem	1.8
0303-00	5" x 5" standard stem with swivel base	2.0



STAIRWAY



INTERNAL ACCESSWAY

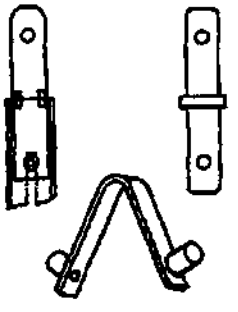


Model No.	Description	Weight (lbs.)
0345-03	Starter Unit (2 per tower)	10.0
0345-07	Accessway for 5' high frames	56.0
0346-07	Accessway for 6'6" high frames	61.0
0342-77	Handrail Assy. (internal) all sizes	16.0
0345-17	Handrail Assy. (external — 5' frames)	29.0
0346-17	Handrail Assy. (external — 6'6" frames)	32.2

Model No.	Description	Capacity (lbs./sq.ft.)	Weight (lbs.)
6053-07	7' Wood Ply/Aluminum	75	28.5
6053-10	10' Wood Ply/Aluminum	50	38.0
6054-07	7' All Aluminum	75	25.5
6054-10	10' All Aluminum	50	38.5

COUPLING PINS

Model No.	Description	Weight (lbs.)
0205-00	Coupling Pin	0.8
0206-00	Spring Clip for 0205-00	0.1
0207-00	With Collar	1.0



GRAVITY LOCK PIN

Model No. 1956-00
Weight (lbs.) .1

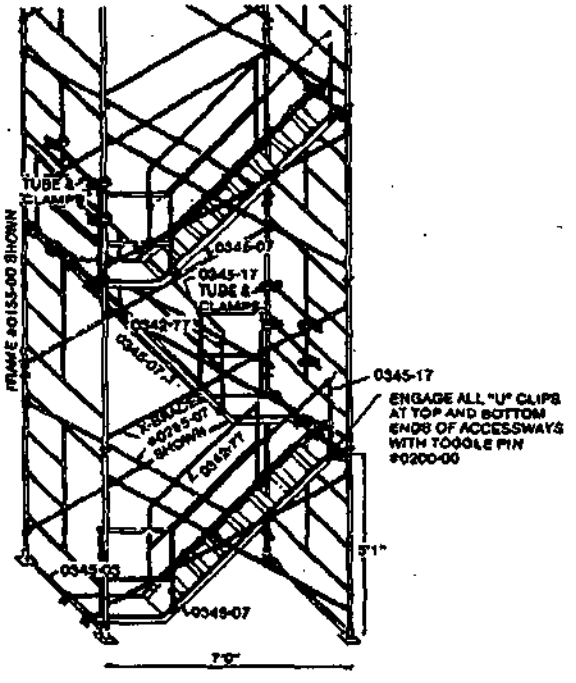
TOGGLE PIN

Model No. 0200-00
Weight (lbs.) .1

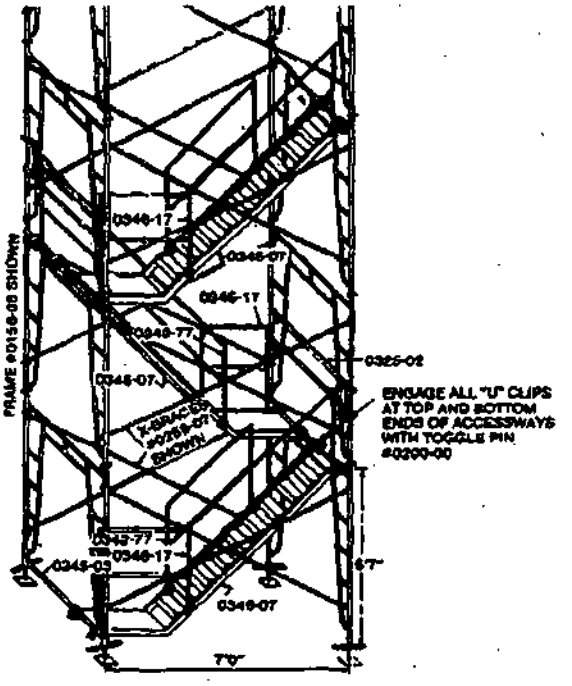
WACO® Internal Accessways

USED WITH STANDARD SCAFFOLD FRAMES

WACO ALL STEEL 24" WIDE INTERNAL ACCESSWAYS ALLOW EASY ACCESS TO VARIOUS LEVELS WITH INTERNAL AND EXTERNAL HAND RAILS.



MODEL 0345-07 USED ON 0155-00 FRAMES



MODEL 0346-07 SHOWN ON 0156-00 FRAMES

BOTTOM OF FIRST ACCESSWAY MUST BE SUPPORTED BY 0345-03 STARTER UNIT. ONE 0346-03 REQUIRED IF BASE SCREWS ARE USED. TWO 0345-03 REQUIRED IF BASE PLATES ARE USED.

NOTES:

(A) 0342-77 INTERIOR HANDRAIL IS ATTACHED TO INSIDE MEMBER OF EITHER 0345-07 OR 0346-07 ACCESSWAY W/(2) 3/8" o X 2 1/4" LONG BOLT W/NUT & LOCKWASHER (FURNISHED).

(B) 0345-17 EXTERIOR HANDRAIL FOR 5'1" FRAME IS ATTACHED TO OUTSIDE MEMBER OF 0345-07 ACCESSWAY* W/(2) 3/8" o X 3" LONG BOLT W/LOCKWASHER (FURNISHED).

(C) 0346-17 EXTERIOR HANDRAIL FOR 6'7" FRAME IS ATTACHED TO OUTSIDE MEMBER OF 0346-07 ACCESSWAY* W/(2) 3/8" o X 3" LONG BOLT W/LOCKWASHER (FURNISHED).

(D) ACCESSWAYS MUST BE TIED TO EXISTING STRUCTURE OR GUYED EVERY THIRD FRAME HIGH. FOLLOW FEDERAL, STATE AND LOCAL CODES.

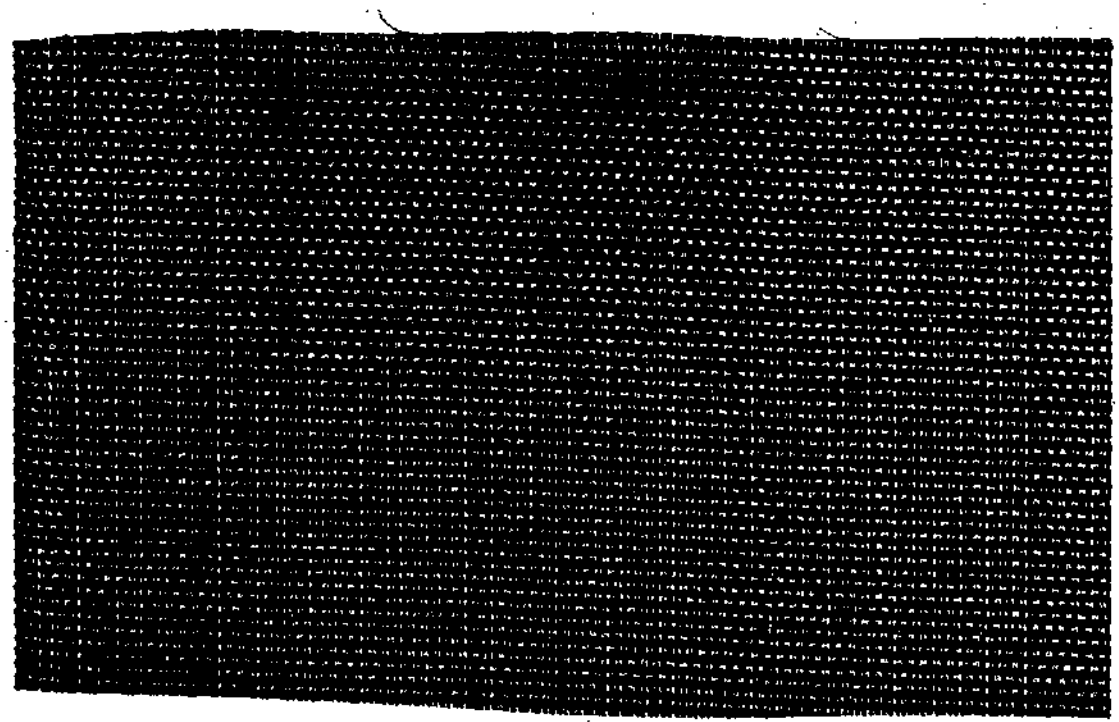
(E) TOGGLE PIN (#0200-00) MAY BE USED IN PLACE OF NUTS AND BOLTS IN (A), (B), and (C).

ITEM NUMBER	DESCRIPTION	WEIGHT
0345-03	Starter Unit (2 per tower)	10
0345-07	Accessway for 5' high frames	81.7
0346-07	Accessway for 6'6" high frames	94.9
0342-77	Handrail Assy. (internal) all sizes	16.0
0345-17	Handrail Assy. (external – 5' frames)	29.6
0346-17	Handrail Assy. (external – 6'6" frames)	29
A0346-07	Accessway for 0156-02, 0156-05, 0156-06 and 0156-07 (6'-7" frame)	50.0
0325-04	Hanging Guardrail For 0156-05, 0156-06and 0156-07 Frames.	12.0

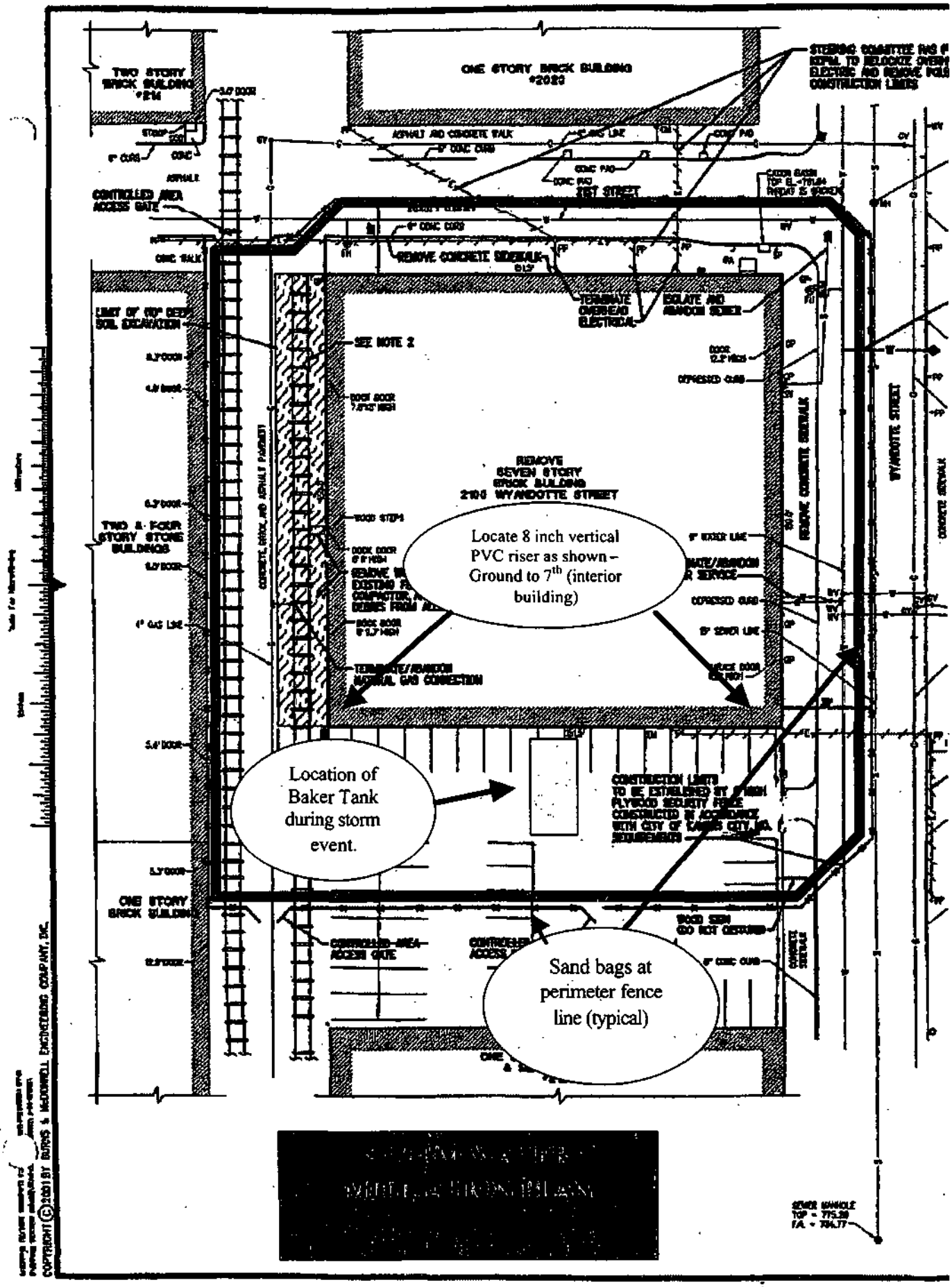
*IMPORTANT NOTE: 0345-07 AND 0346-07 ACCESSWAYS MANUFACTURED BEFORE 8/75 REQUIRE HOLES ADDED TO OUTSIDE MEMBER IN ORDER TO ATTACH EXTERNAL HANDRAIL.

Fig. 15.19

APPENDIX B



APPENDIX C


ONE STORY BRICK BUILDING #2020
TWO STORY BRICK BUILDING #214
CONTROLLED AREA ACCESS GATE
REMOVE CONCRETE SIDEWALK
TERMINATE OVERHEAD ELECTRICAL
ISOLATE AND REMOVE SEWER
SEE NOTE 2
REMOVE SEVEN STORY BRICK BUILDING 2100 WYANDOTTE STREET
TWO & FOUR STORY STORE BUILDINGS
TERMINATE/REMOVE NATURAL GAS CONNECTION
WYANDOTTE STREET
ONE STORY BRICK BUILDING
Locate 8 inch vertical PVC riser as shown – Ground to 7th (interior building)
Location of Baker Tank during storm event.
Sand bags at perimeter fence line (typical)
CONSTRUCTION LIMITS
SEWER MANHOLE

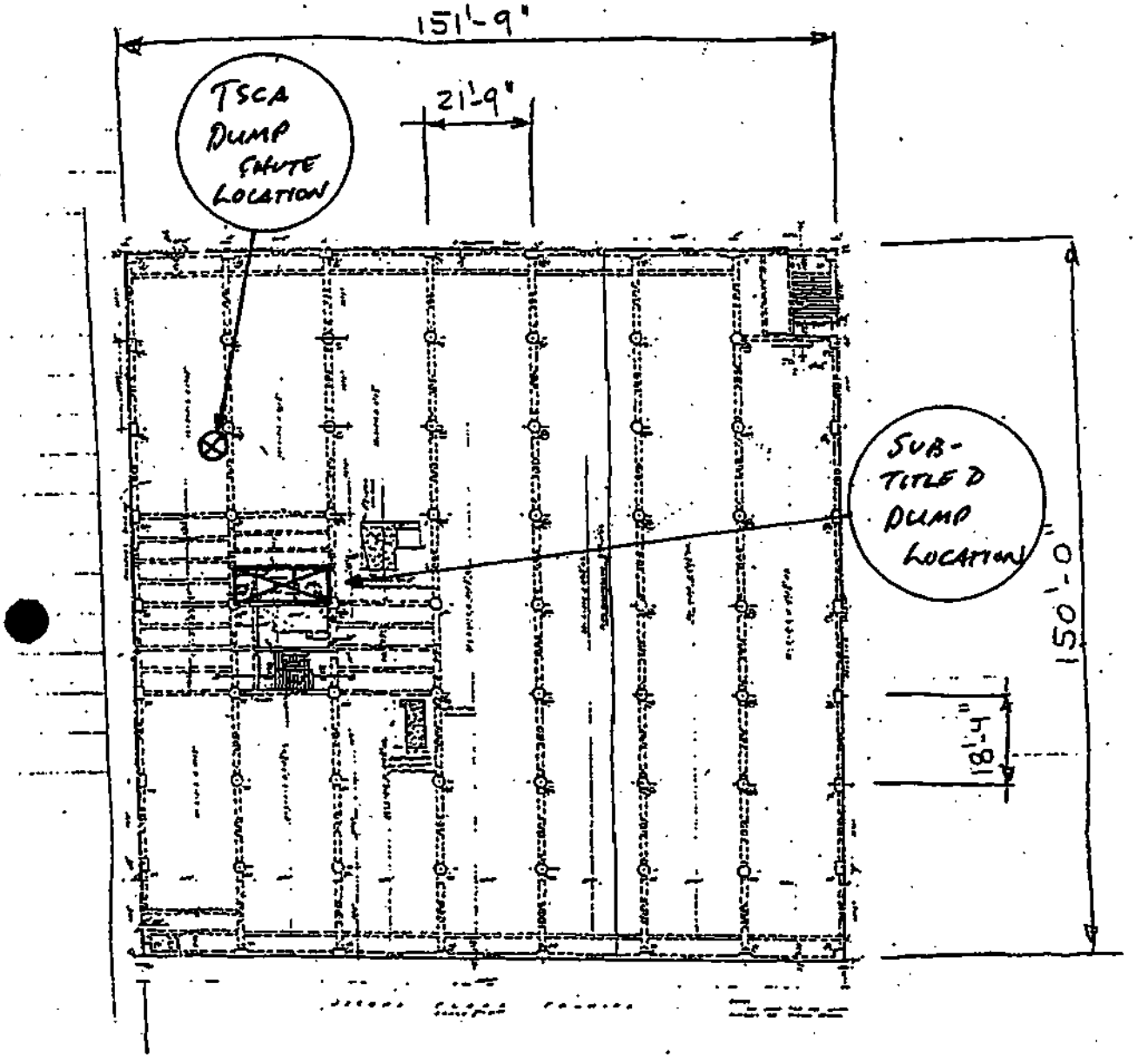
APPENDIX D

HEAUSLER
STRUCTURAL
ENGINEERS
KANSAS CITY

9233 Ward Parkway ~ Suite 145 ~ Kansas City, Missouri 64114 ~ (816) 822-1180 ~ Fax (816) 822-1187

APPENDIX A

AL



DUMP CHUTE LOCATIONS

TYPICAL FLOOR FRAMING PLAN

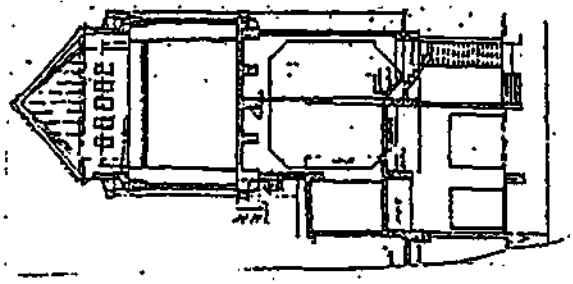
N

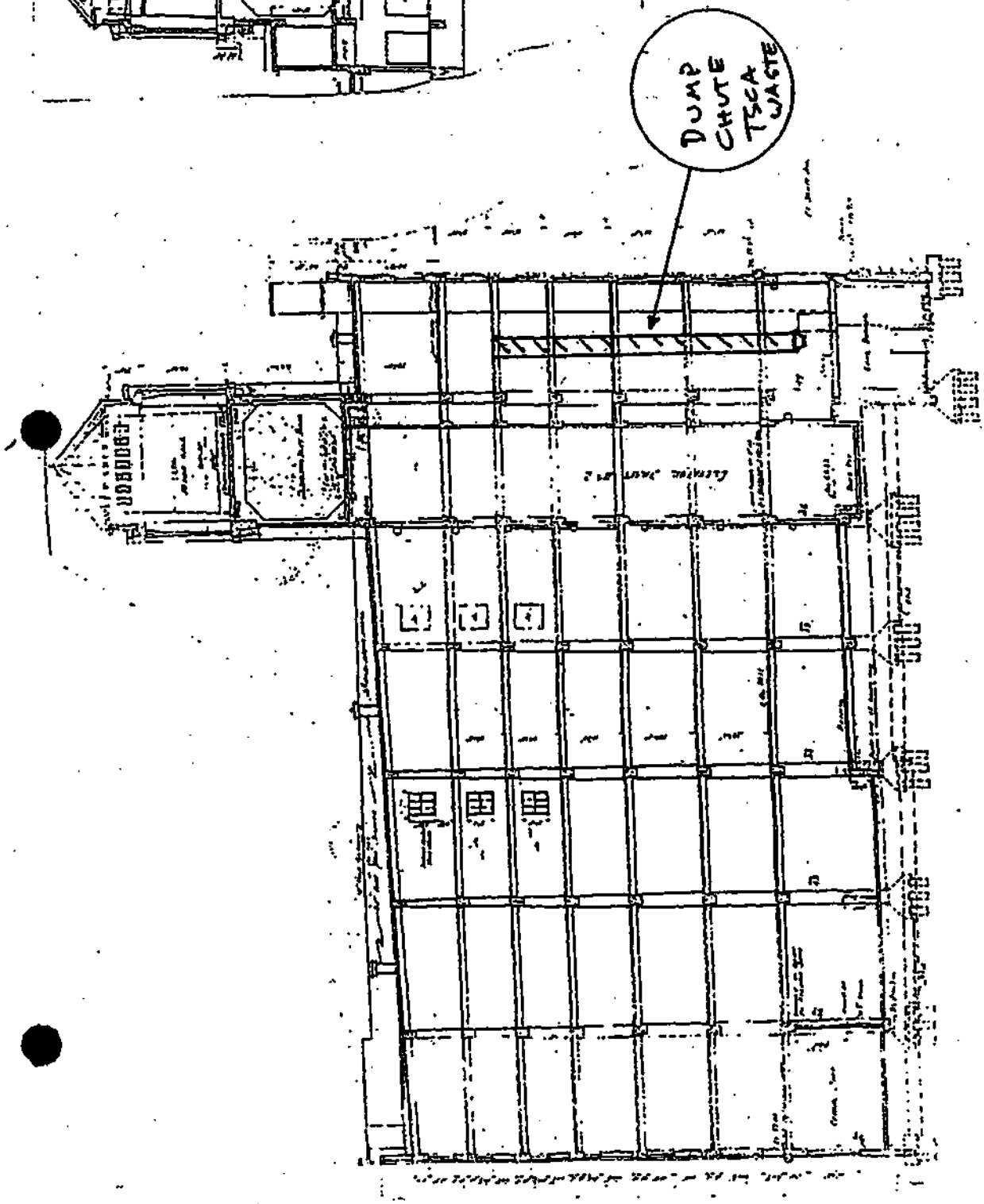
1/2

HEAUSLER
STRUCTURAL
ENGINEERS
KANSAS CITY

9233 Ward Parkway ~ Suite 145 ~ Kansas City, Missouri 64114 ~ (816) 822-1180 ~ Fax (816) 822-1187

A7





LONGITUDINAL SECTION

LOOKING

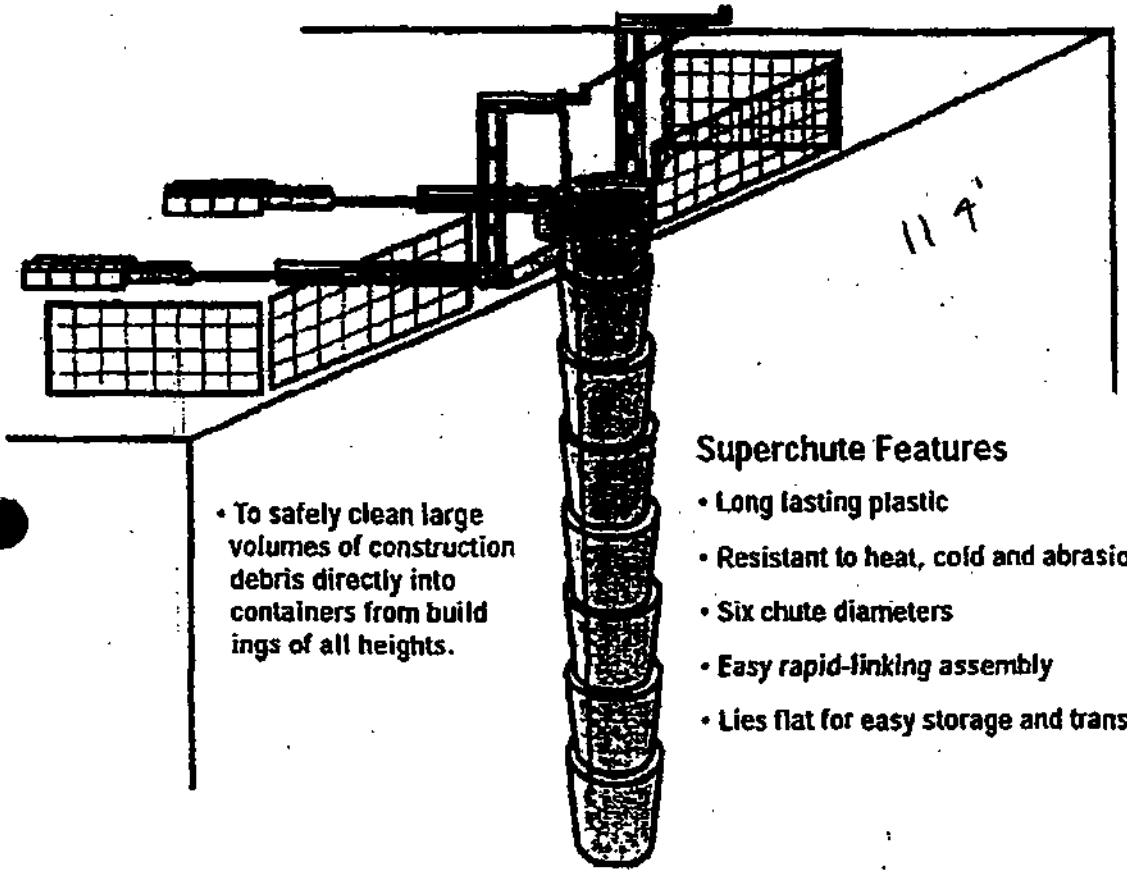
2/2

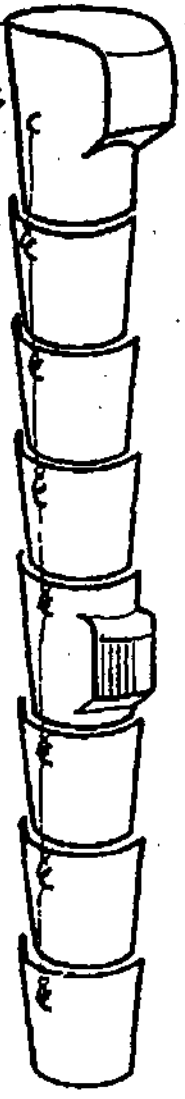
SUPERCHUTE® YOUR WASTE MATERIALS FROM THE WORK SITE

Debris Chutes

These plastic trash chutes are the choice of contractors nationwide because they are designed for ease-of-use and durability. This is the quickest, cleanest and safest solution. These chutes are engineered to mount to roofs, floor slabs and windows.

30" DIAMSER
4' LONG SECTIONS



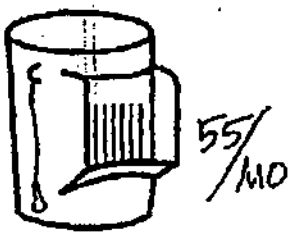


- To safely clean large volumes of construction debris directly into containers from build ings of all heights.

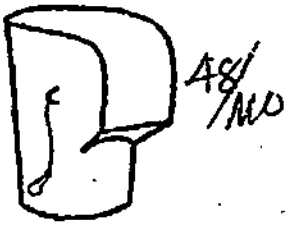
Superchute Features

- Long lasting plastic
- Resistant to heat, cold and abrasion
- Six chute diameters
- Easy rapid-linking assembly
- Lies flat for easy storage and transport

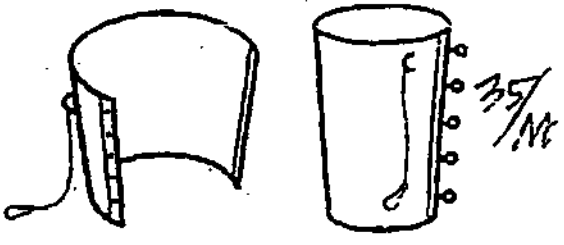
SLIP DRS-30
Door Section



SLIP THS-30
Top Hopper Section



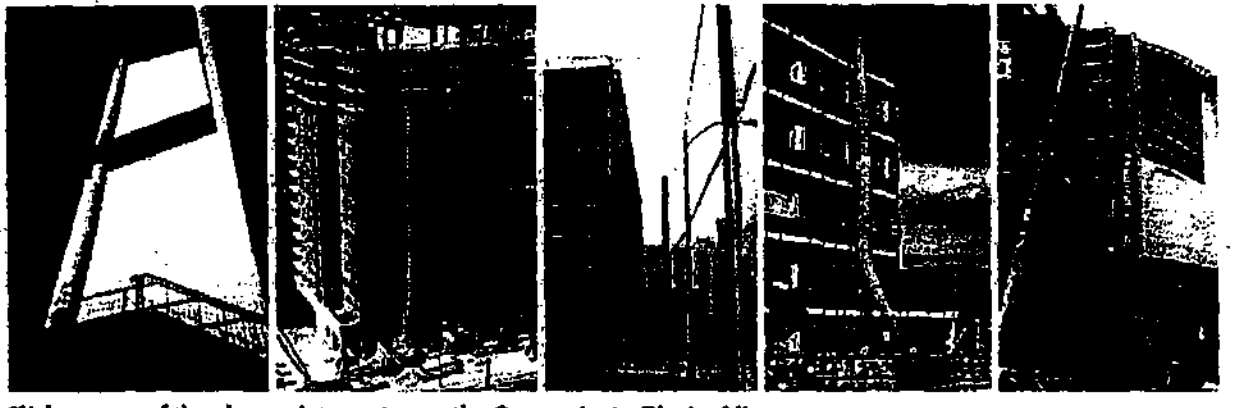
SLIP WRAP-30
Wraparound - Regular Section



Construction Debris Chutes

QUICK & SAFE DEBRIS REMOVAL

SUPERCHUTE® polyethylene trash chutes are the choice of suppliers & contractors throughout North America. Superb ease-of-use and durability provide a quick, clean, & safe solution. Our designs have been perfected to provide you with the right tool for debris removal.



Click on any of the above pictures to see the **Superchute Photo Album.**

IDEAL FOR: Builders • Roofers • Scaffolders • Masons • Demo Contractors • Supply Houses • Rental Stores • Renovators

Superchute® sections are tapered tubes that attach quickly & easily to one another using built-in cable assemblies. Create chutes up to 200 ft. in length (see Cable Assemblies for important information on height limitations). Use Chute Hoists to install and support the chute.

Entry sections allow debris to be cleared from any floor level, and are equipped with Cable Gates as required by OSHA.

Click on the links below to learn more:

Welded Sections

(Permanent tubes)

Wraparound® Sections

(Can go flat)

To speak to a customer service representative call 1-800-363-2488 or contact us.

All Superchute® sections are:

- 4 foot tall (because linked sections overlap a little, 3 sections provide 10 ft. of drop).
- slightly tapered (only 1 inch taper - tight fit minimizes airborne dust).
- equipped with safe & strong cable linking hardware.
- branded with your company name.
- outstandingly resistant to abrasion, chemicals and cold.
- lightweight, safe, flexible, and quiet in use.
- made from yellow UV treated plastic.

Superchute® sections are designed for temporary use.

Six Chute Diameters Available

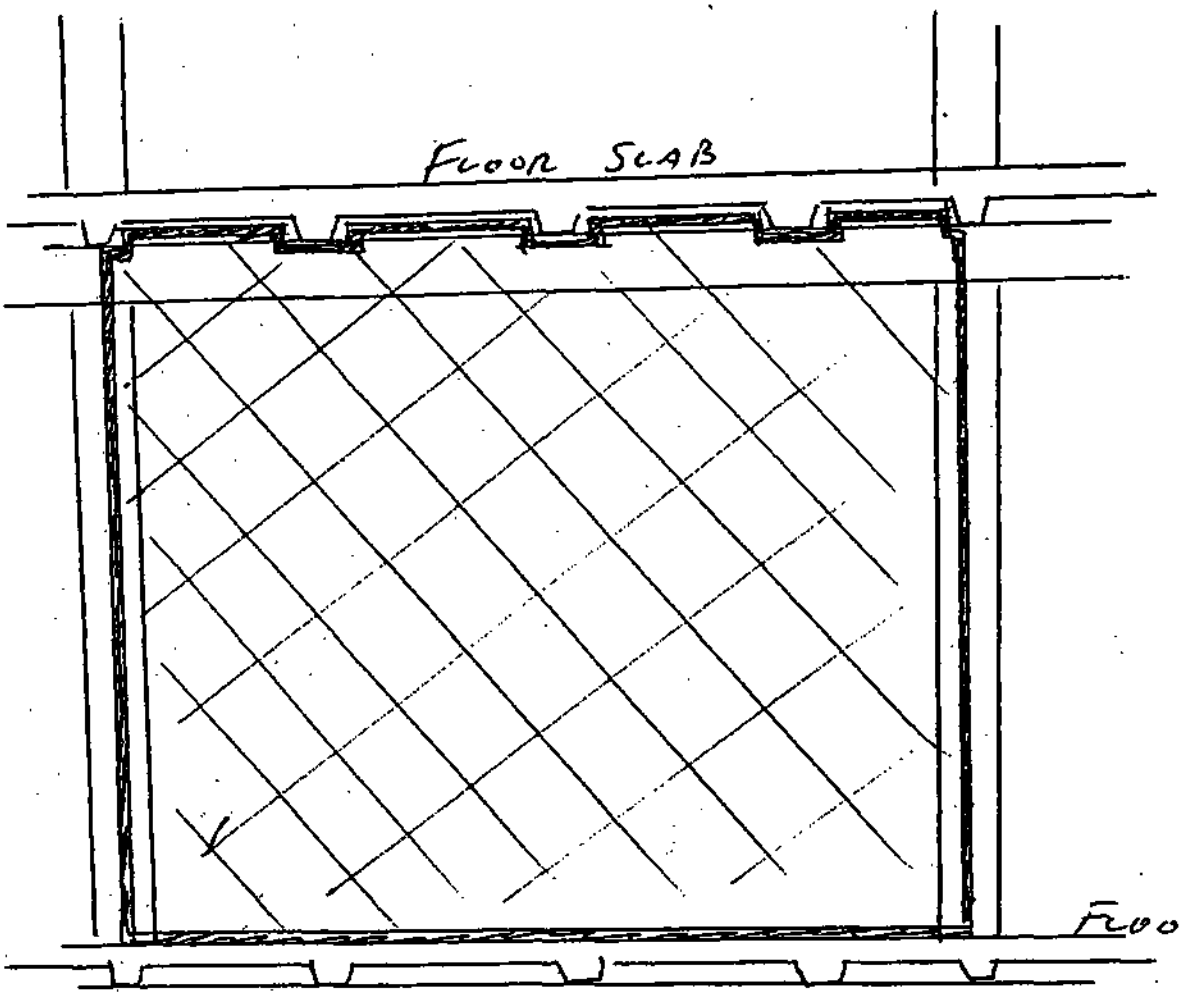
18" 23" 27" 30" 33" 36"

Useful Accessories:

1) Steel Liners	Use to reinforce the sections that bend into the container
2) Door Adjustment Kits	Use to adjust the height of installed door sections
3) Come Alongs	Use with Door Adjustment Kit
4) Container Cord	Use to secure chute to container
5) Container Drencher	Use to soak the container's debris, for dust and fire control
6) Repair Kits	For repair of broken clasps or perforations in the chute wall

MINI CONTAINMENT SKETCH

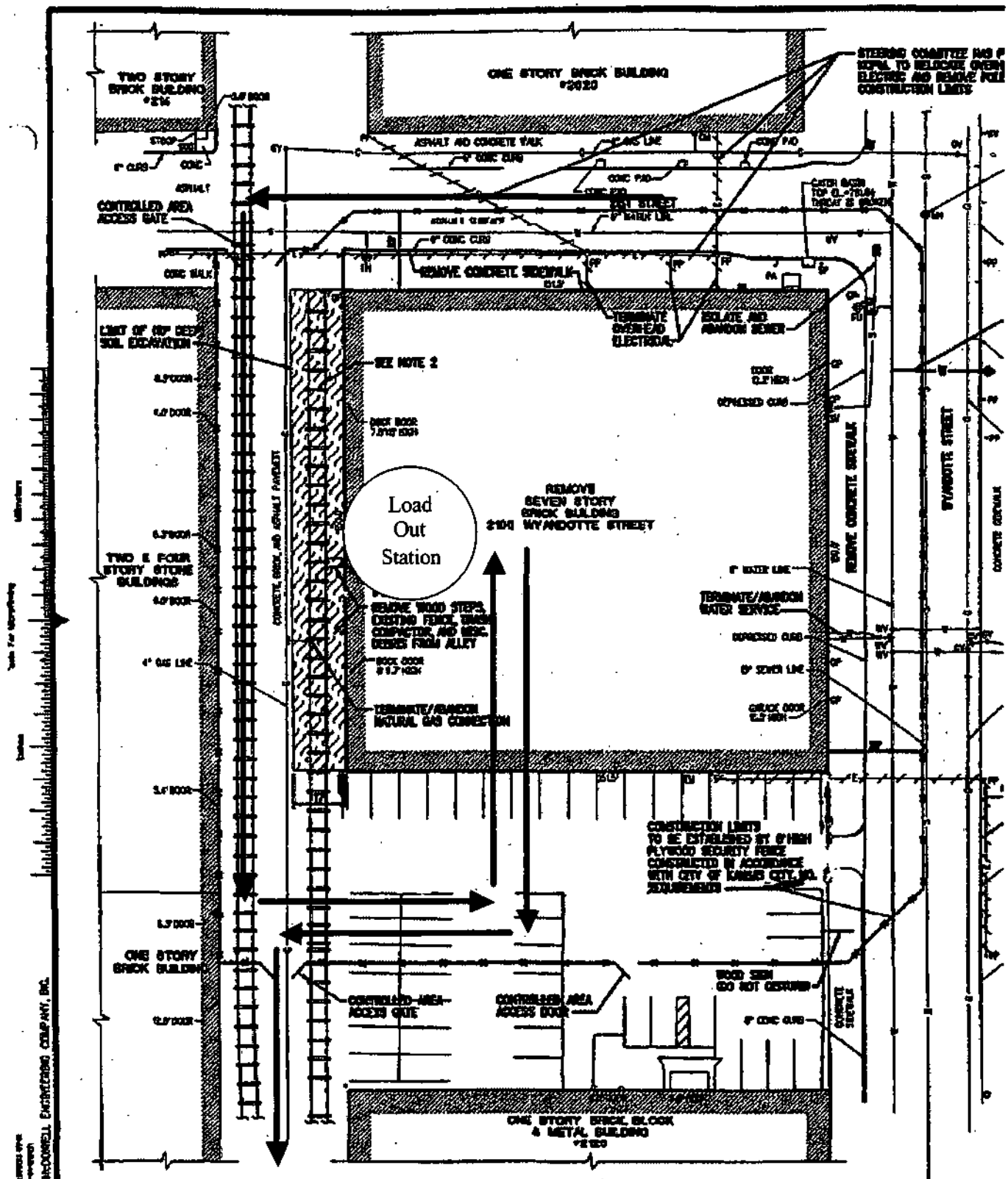
SCRIM FRAME
TYPICAL EAST-WEST
ELEVATIONS. SIMILAR
NORTH-SOUTH.



MOVEABLE
METAL FRAME
WITH SCRIM
USE MULTIPLE
UNITS TO
ENCLOSE
AFFECTED BAYS

NTS

APPENDIX E

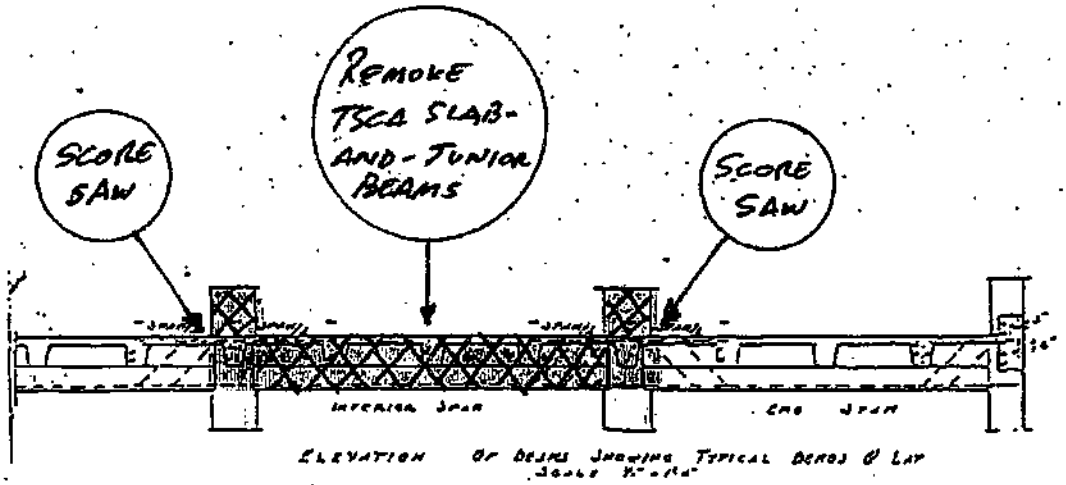


LOAD OUT SKETC

Trucks will enter from the north, back-into the ground floor of the building through a wall opening, load-out from stockpiles in the loading dock, and exit to the south. Alternatively, trucks could enter north through a wall opening in the north wall of the building (ground floor).

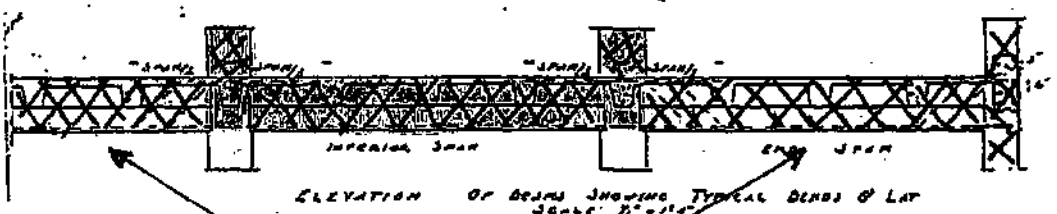
APPENDIX F

A



ELEVATION OF BEAMS SHOWING TYPICAL DEMOS & LAY

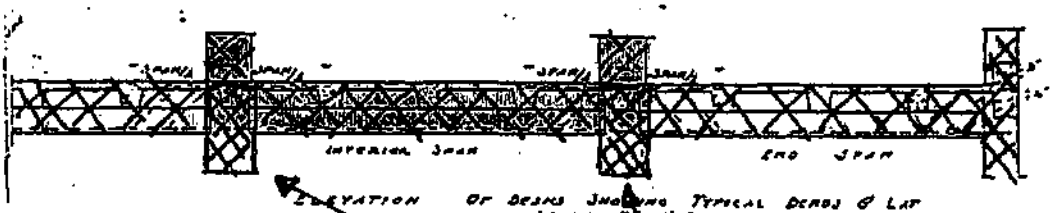
B



ELEVATION OF BEAMS SHOWING TYPICAL DEMOS & LAY

REMOVE SUBTITLE D FLOORS BEAMS & COLUMNS

C



ELEVATION OF BEAMS SHOWING TYPICAL DEMOS & LAY

REMOVE TSCA BEAM GRID & COLS.

TSCA

SUBTITLE "D"

"TYPICAL" SECTION SHOWN

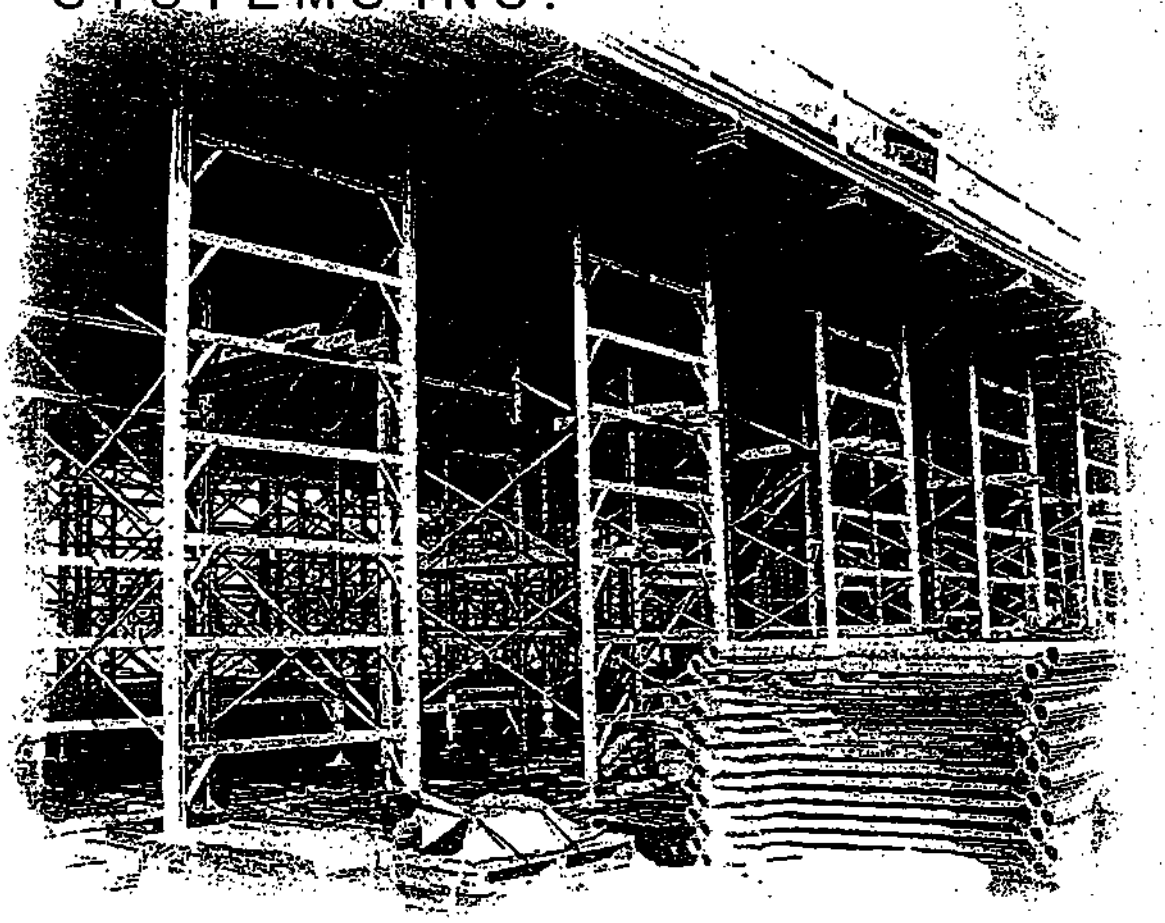
SEQUENCE SKETCH

APPENDIX G

MODULAR ALUMINUM SHORING

HI-LITE

SYSTEMS INC.



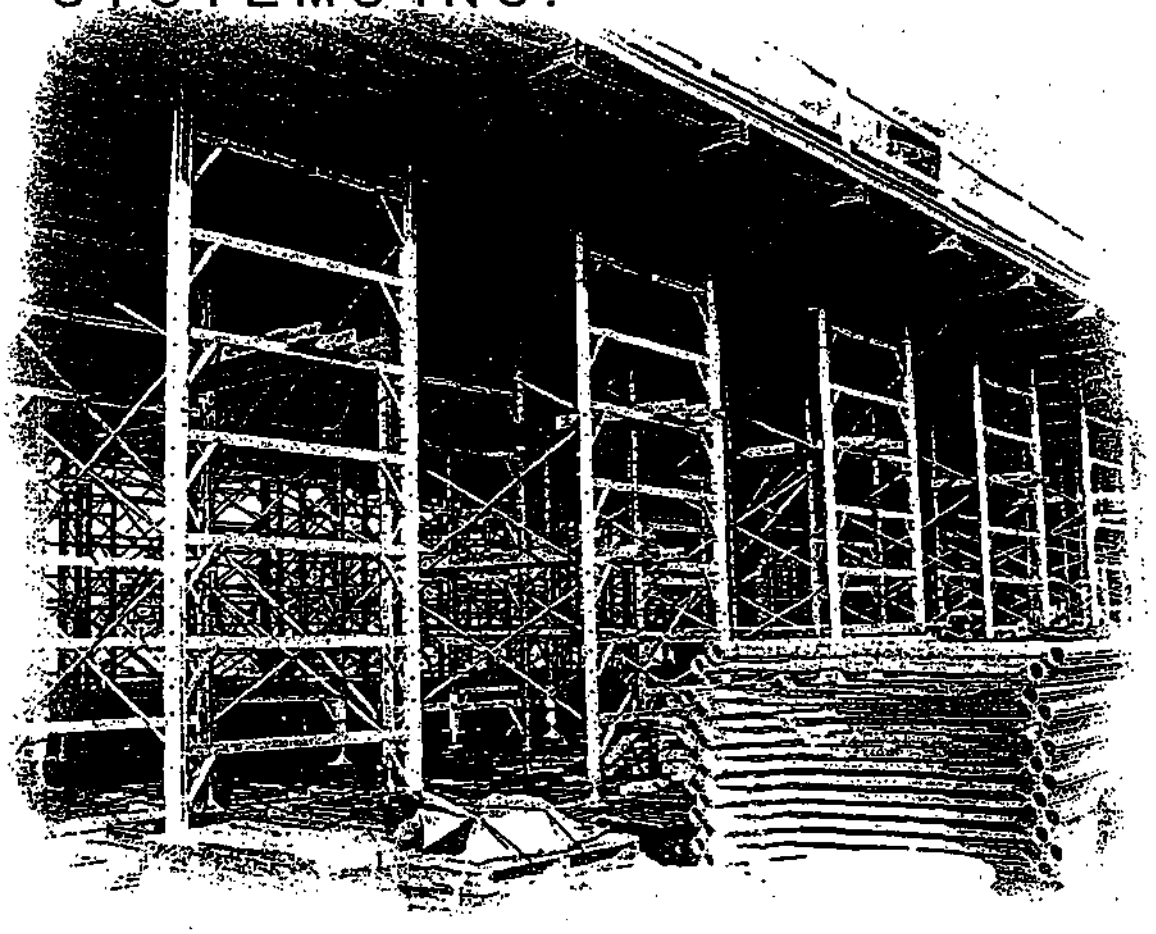
HI-LITE Products

- 12k Aluminum Shoring Frames
- 25k Modular Alum. Shoring Frames
- 16k Modular Alum. Shoring Frames
- 10k Modular Alum. Shoring Frames
- Modular Aluminum Post Shores
- Telescopic Aluminum Fly Forms
- Aluminum Wall Forms
- Aluminum Beams
- Tie Rods
- Scaffolding & Access Trusses
- OTHERS

- **Hi-strength and Lite-weight aluminum**
- Capacity tested to safe working loads up to 22,700 kg (50.,000 lbs) per frame, using a safety factor of 2.5:1.
- Aluminum frames are highly resistant to damage for long rust free service life with minimal maintenance
- Frames and accessories can be easily hand set and stripped without using a crane by a single person
- Transportation, storage and handling cost are reduced because of their light weight and modular features.
- Frames can be transformed into Post Shores.
- Versatile combinations of screw jacks, base plates and extension tubes can be added to the top or bottom of the frame or post shores to suit diverse applications
- Light weigth permits single person handling and set applications in difficult areas.
- Four vertical T-bolt slots run the full length of the frame legs enabling braces or other components to be attached in 4 different directions. Ledgers are spaced at 2ft spacing to facilitate easy climbing.
- Post Shores can be attached to a tower or a frame can be braced at right angles to another frame.
- Snap-on Jet Locks make erection and dismantling fast, easy and safe.

MODULAR ALUMINUM SHORING

HI-LITE SYSTEMS INC.



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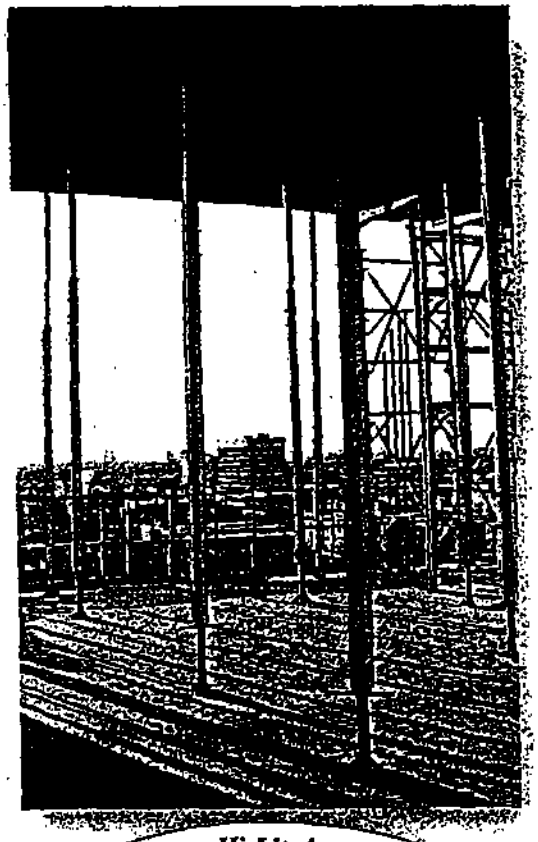
HI-LITE SYSTEMS INC.

High strength & LITE weight

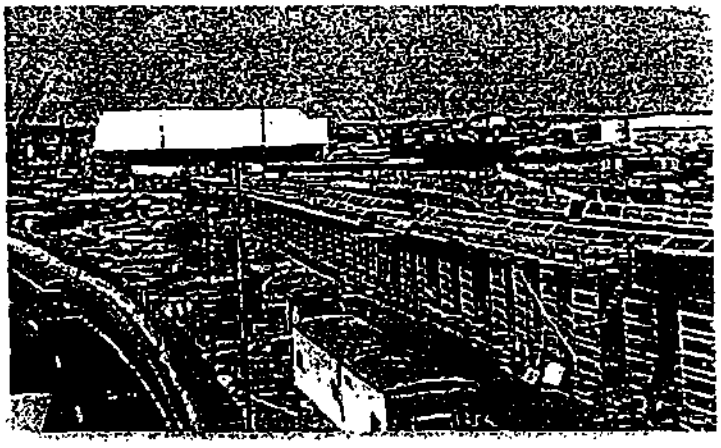


Hi-Lite 's heavy load post shores at 15' high safely support 10,000 lbs. One experienced contractor said they saved 80% based on their strength/ weight ratio and ease of handling.

Hi-Lite Systems' Modular Aluminum Shoring system is a demountable versatile system. The inside panel ledgers can be easily and quickly removed to convert the legs to post shores. The ledgers can be used in common with the three capacities of the system design, 10K 16K and 25K. This versatility enables inventory to be kept to a minimum with reduced storage area. Further, the speed of assembly enables shipping costs to be dramatically reduced from the factory or on long hauls.

The light weight enables the frames to be hand set when desirable but, more importantly, they can be hand dismantled under the slab where using a crane is very difficult. Despite the system's superior strength, a single worker can lift even the heaviest Hi-Lite 25kip/leg frame which weighs less than 27 kg (60 lb).

Imagine a frame that can carry 27,200 kg (50,000 lbs) and yet is lighter than a 5,000 lbs capacity steel scaffold arch frame. The advantages of Hi-strength and Lite-weight become even more apparent as shoring heights increase as is often the case with *overpasses and bridges.*



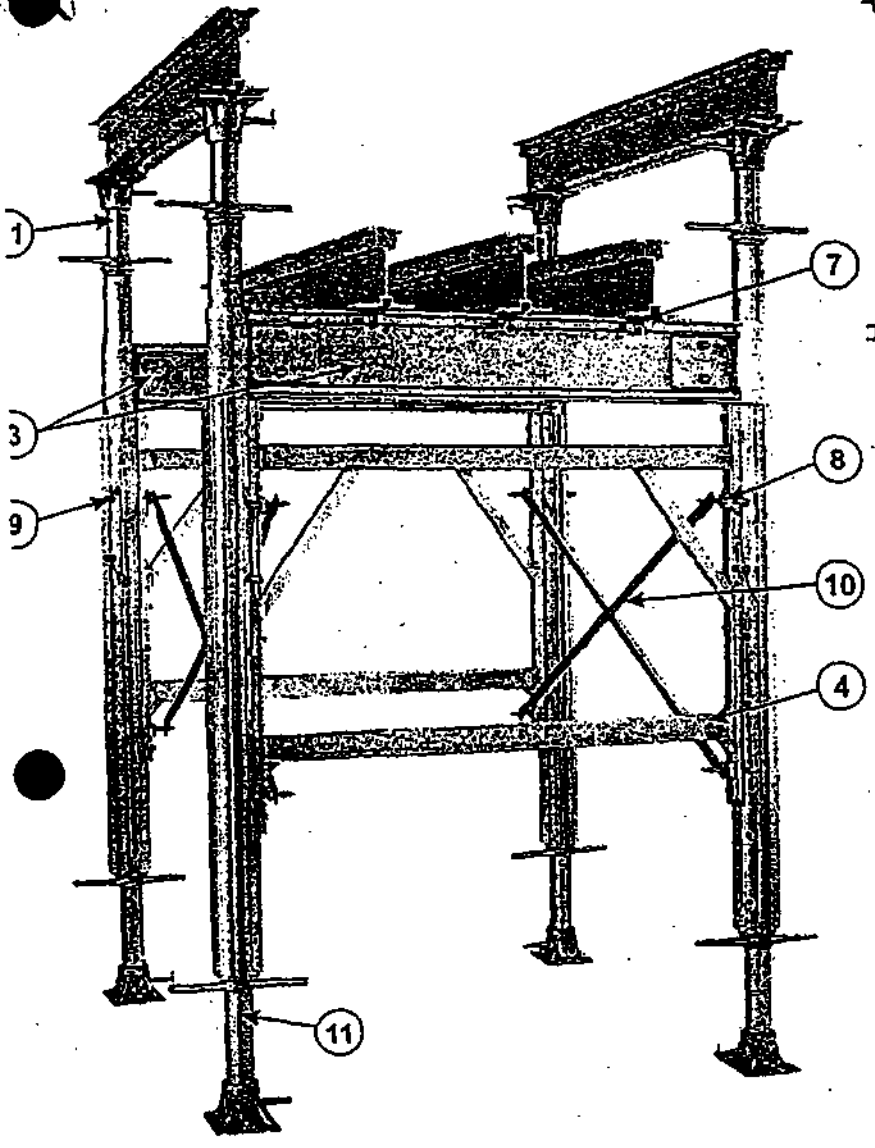
Frames Specification	10k			16k			25k		
Height x Width	Part No.	Weight lbs	Weight kgs	Part No.	Weight lbs	Weight kgs	Part No.	Weight lbs	Weight kgs
1.2m x 1.2m (4'x4')	10FM44	27.8	12.7	16FM44	33.4	15.2	25FM44	38.9	17.7
1.5m x 1.2m (5'x4')	10FM54	36.5	16.6	16FM54	43.4	19.7	25FM54	50.3	22.9
1.8m x 1.2m (6'x4')	10FM64	41.9	19.1	16FM64	50.2	22.8	25FM64	58.4	26.6
2.4m x 1.2m (8'x4')	10FM84	55.8	25.3	16FM84	65.5	29.7	25FM84	77.8	35.3
1.2m x 1.5m (4'x5')	10FM45	28.3	12.9	16FM45	33.8	15.4	25FM45	39.3	17.9
1.5m x 1.5m (5'x5')	10FM55	37.8	17.2	16FM55	44.7	20.3	25FM55	51.5	23.4
1.8m x 1.5m (6'x5')	10FM65	43.2	19.6	16FM65	51.5	23.4	25FM65	59.7	27.1
2.4m x 1.5m (8'x5')	10FM85	56.7	25.7	16FM85	66.1	30.0	25FM85	78.7	35.7
1.2m x 1.8m (4'x6')	10FM46	31.2	14.2	16FM46	36.7	16.7	25FM46	42.2	19.2
1.5m x 1.8m (5'x6')	10FM56	41.5	18.9	16FM56	48.4	22.0	25FM56	55.3	25.1
1.8m x 1.8m (6'x6')	10FM66	47.0	21.3	16FM66	55.2	25.1	25FM66	63.5	28.8
2.4m x 1.8m (8'x6')	10FM86	62.4	28.3	16FM86	72.1	32.7	25FM86	84.4	38.3

HI-LITE Systems Inc.
2000 Drew Rd., Mississauga, Ontario,
Canada, L5S 1S4
Tel: (905) 677-4032 / Toll-free: 1-877-HILITE-1
Fax: (905) 677-4542
Web site: www.hi-lite-systems.com

IASCO

FRAME & POST SHORE DETAIL

HI-LITE SYSTEMS INC.

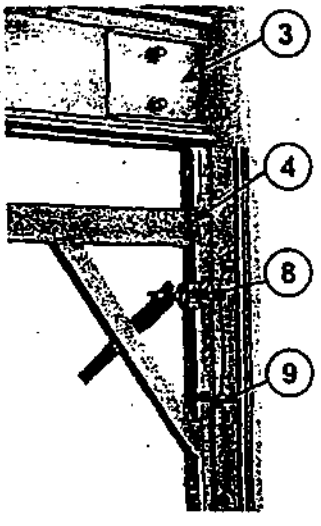


3 SADDLE BEAM

Aluminum SADDLE BEAMS can save many mai hours on drop beams and concrete slab construction by enabling the soffit of the drop beams to b supported at one level and the slab at another level This enables the slab support to be removed withou disturbing the support under the drop beams. Th saddle beams can be made from 165 mm (6.5") o 184 mm (7.25") beams by utilizing our special bean

4 MODULAR LEDGERS

The DEMOUNTABLE MODULAR LEDGERS ar available in 2, 4, 5, and 6 foot widths. The horizonta bars are spaced every 2feet apart to facilitat climbing for hand setting and stripping.. Thes ledgers are common to our 3 capacities of frame leg of the same design,10K, 16K and 25K Interchangeable ledgers keep inventory costs to minimum and the frame legs can be made into pos



1 EXTENSION TUBE

EXTENSION TUBES can be installed in the top and/or bottom of the frame leg. This often allows a reduction in the number of frames required for a job, by a factor of up to 50% resulting in more efficient utilization of equipment and significant cost reductions.

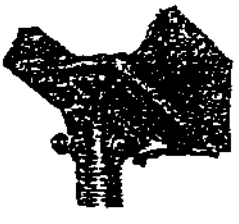
Levelling time for extension tubes is far less and the levelling is more accurate than adjusting screwjacks to level when used on flat level concrete if the tubes are placed on the bottom of the tower.

XTENSION TUBE PLATE

EXTENSION TUBE PLATES, with adaptors, secure the ends of the extension tube or the frame legs to the aluminium stringer when a screwjack is not required.

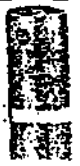
5 U-HEAD

U-HEADS fit on either fixed or swivel screwjack or extension tube plates. They are available in 5, 8 or 10 inch widths and are 8 inches long.They bold the beams or timber directly over the frame legs.



6 FRAME COUPLING PIN

FRAME COUPLING PINS connect frames one on top of another when erecting multiple-tier towers.



APPENDIX H

Quantum

1600

SPECIFICATIONS

15,432 lbs. (7 000 kg) Operating Weight

Link-Belt

EXCAVATORS

SCRAPMASTER ▮ LOGMASTER

1600 Quantum Specifications

Engine

Isuzu 4JB1 direct injected, water cooled, 4-cycle diesel, 4 cylinder, 169.1 CID (2 771 cc), 3.66" (93 mm) bore x 4.02" (102 mm) stroke.

SAE net horsepower	54 HP (40.5 kW) @ 2,100 rpm
Maximum torque	139 ft-lbs. (19.2 kg-m or 188 N-m) @ 1,600 rpm
Starter	Electric, 24V, 3.2 kW
Alternator	40 amp
Air cleaner	Single element
Governor	Variable speed, mechanical

Hydraulic System

Two variable displacement axial piston pumps, one gear pump for pilot controls and one gear pump for blade, with two selectable work modes, one touch idling, and two safety lockout switches including gate lock.

Hydraulic Pumps

Two variable volume piston pumps provide power for attachment, swing and travel.

Maximum flow	2 x 20 gpm (2 x 75.6 l/min)
Pilot pump max. flow	5.9 gpm (22.5 l/min)
Blade pump max. flow	6.7 gpm (25.4 l/min)

Relief Valve Settings

Boom up/arm/bucket	4,409 psi (310 kg/cm²)
Boom down	3,698 psi (260 kg/cm²)
Swing circuit	2,987 psi (210 kg/cm²)
Travel circuit	4,150 psi (290 kg/cm²)
Blade circuit	3,350 psi (235 kg/cm²)

Hydraulic Cylinders – number of cylinders – bore x rod x stroke.

Boom	1 – 3.9" x 2.6" x 36.5" (100 mm x 65 mm x 927 mm)
Arm	1 – 3.7" x 2.4" x 34.6" (95 mm x 60 mm x 878 mm)
Bucket	1 – 3.3" x 2.2" x 26.3" (85 mm x 55 mm x 668 mm)

Oil Filtration

Nephron filter	1 micron
Return, pilot, drain filter	10 micron
Suction strainer	150 mesh

Control Valves One 4-spool valve for right track travel, arm, boom, bucket, and one 5-spool valve for left track travel, boom, arm, swing, and auxiliary and one 1-spool valve for blade.

Cab and Controls

Cab mounted on 6 rubber mountings. Features include a safety glass front window and LEXAN® MARGARD™ rear and side windows, reclining/sliding cloth upholstered suspension seat with headrest and armrests, heater, oscillating fan, AM/FM radio, cigarette lighter, pop-up skylight window, and intermittent wiper with washer. Front window slides upward for storage and the lower front window is removable. Reliable soft-touch switches. Pilot operated joystick controls.

Swing

Planetary reduction powered by axial piston motor. Internal ring gear with grease cavity for swing pinion. Swing bearing is single-row shear type ball bearing. Swing cushion valve and dual stage relief valves for smooth swing deceleration and stops. Mechanical disc swing brake.

Swing speed	0 – 13.5 rpm
Tail swing	5' 9" (1.75 m)
Swing torque	13,057 ft-lbs. (1 805 kg-m)

Undercarriage

X-style carbody is integrally welded for strength and durability. Grease cylinder track adjusters with shock absorbing springs. LC undercarriage with sealed track, lubricated rollers and idlers. Triple grouser track shoes.

Carrier rollers	1 per side
Track rollers	5 per side
Shoes	42 per side
Shoe width	17.7" (450 mm)
Ground pressure	4.69 psi (.33 kg/cm²)

Alternating inner and outer flanged rollers are used to assure proper track rail to roller engagement.

Travel System

Two-speed independent hydrostatic travel with compact axial piston motors for increased performance. Hydraulic motor powered output shaft coupled to a planetary reduction unit and track sprocket. All hydraulic components mounted within the width of side frame. Travel speeds selected by floor mounted foot switch.

Max. travel speed	2.3/3.1 mph (3.7/5.0 km/h)
Traction force	11,023 lbs. (5 000 kg)
Gradeability	70%

Spring applied, hydraulically released disc parking brake built into each motor. Each travel motor equipped with counterbalance valve to prevent over-speeding down an incline and dual stage reliefs for smooth starts and stops.

Lubricant & Coolant Capacity

Hydraulic tank	14.6 gal. (55.4 liters)
Hydraulic system	25.1 gal. (95 liters)
Final drive (per side)	0.4 gal. (1.7 liters)
Engine	1.8 gal. (6.8 liters)
Fuel tank	37 gal. (140 liters)
Cooling system	2.6 gal. (10 liters)

Attachment

Available Arms	Digging Force
• 5' 8-1/2" (1.74 m)	8,820 lbs. (4 000 kg)
• 7' 2" (2.18 m)	7,495 lbs. (3 400 kg)
Bucket digging force	12,350 lbs. (5 600 kg)

Optional Attachment

Offset 2-piece boom; 12' 6" (3.80 m) long. Boom offsets hydraulically up to 3' 8-1/4" (1.12 m) from centerline allowing straightline digging along foundations, pipelines, etc. All-welded arm, 5' 8-1/2" (1.74 m) long.

Blade

7' 4-1/2" (2.25 m) wide and 1' 6" (.46 m) high, hydraulically controlled by use of a lever in the operator's cab. Blade will cut 9" (235 mm) below grade. Lower edge of blade raises 1' 2-3/4" (375 mm) above grade.

Operating Weight

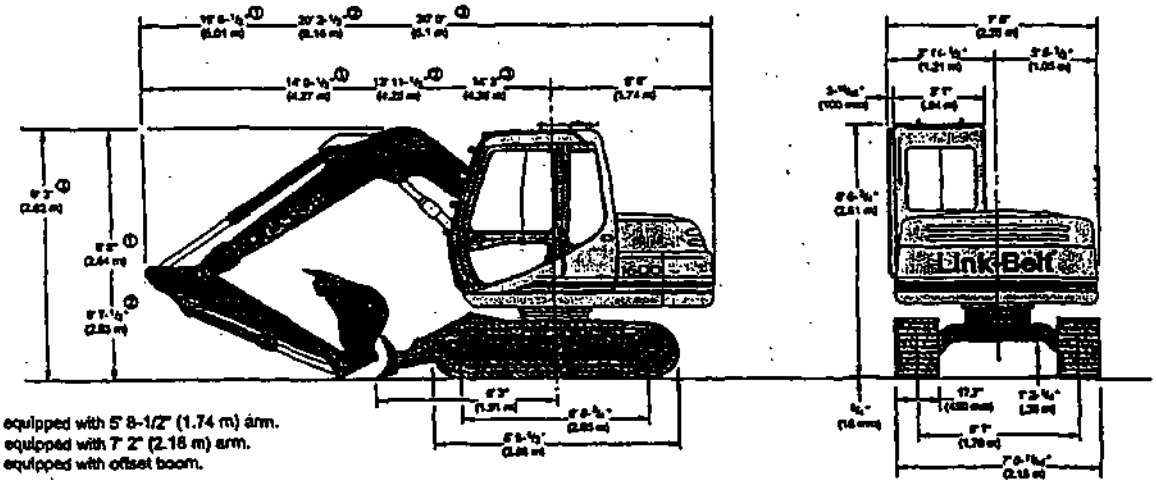
Working weight with 17.7" (450 mm) shoes, 5' 8-1/2" (1.74 m) arm, 12' 2" (3.70 m) boom and 463 lb. (210 kg) bucket ..... 15,432 lbs. (7 000 kg)

Working weight with 17.7" (450 mm) shoes, 5' 8-1/2" (1.74 m) offset arm, 12' 6" (3.80 m) boom and 463 lb. (210 kg) bucket ..... 16,540 lbs. (7 500 kg)

Standard Equipment

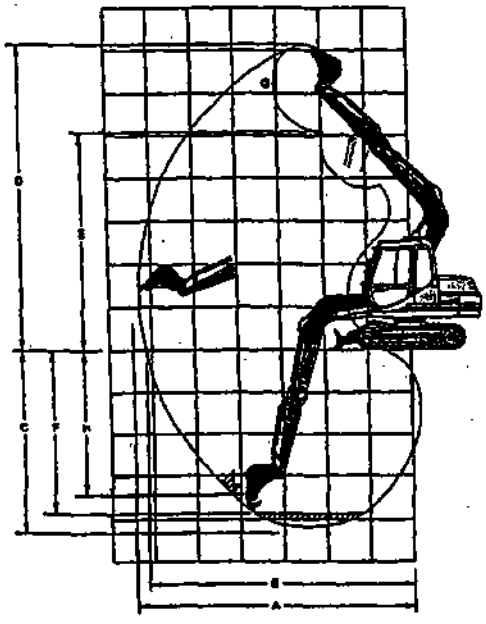
- Isuzu 4JB1 diesel engine
- 40 amp alternator
- Single element air filter
- 24-volt starting system, battery lighting system, sealed heavy duty electrical connectors
- Nephron filtration system
- Two selectable working modes
- One touch idling
- Integral cylinder cushioning
- Full time cushion attachment control
- Boom and arm holding valves
- Spare accessory valve
- 2-speed hydrostatic travel
- Hydraulically controlled blade
- Travel alarm
- Sliding/reclining, suspension cloth upholstered seat with 4-position tilting consoles and sliding platform
- Heater, fan, seat belt, horn, dome light, AM/FM radio, digital clock, floor mat, cigarette lighter
- Safety glass front window with automatic lock and intermittent windshield wiper and washer, large LEXAN® rear/side windows
- Vandalism locks/guarding
- Upper and lower undercovers
- LC undercarriage
- 1,543 lb. (700 kg) counterweight
- Quick disconnects in hydraulic system for easy pressure checking

Dimensions



① Machine equipped with 5' 8-1/2" (1.74 m) arm.
② Machine equipped with 7' 2" (2.18 m) arm.
③ Machine equipped with offset boom.

Working Ranges



	12' 2" (3.70 m) Boom	
	5' 8-1/2" Arm 1.74 m	7' 2" Arm 2.18 m
A Max. digging radius	20' 10" 6.36 m	22' 4" 6.81 m
B Max. digging radius @ ground level	20' 5" 6.22 m	21' 11" 6.68 m
C Max. digging depth	13' 7" 4.15 m	15' 0" 4.58 m
D Max. digging height	23' 9" 7.23 m	25' 1-1/2" 7.66 m
E Max. dumping height	16' 10-3/4" 5.15 m	18' 3" 5.56 m
F Digging depth – 8' (2.44 m) level bottom	12' 7" 3.84 m	14' 3-1/4" 4.35 m
G Bucket wrist angle	178°	178°
H Max. vertical wall depth	11' 5" 3.49 m	13' 4" 4.06 m

	12' 6" (3.80 m) Boom	
	5' 8-1/2" (1.74 m) Arm (Max. Offset)	5' 8-1/2" (1.74 m) Arm (0 Offset)
A Max. digging radius	19' 4" 5.89 m	20' 11" 6.38 m
B Max. digging radius @ ground level	19' 0" 5.78 m	20' 6" 6.24 m
C Max. digging depth	12' 8" 3.87 m	13' 7" 4.13 m
D Max. digging height	22' 6" 6.88 m	23' 8" 7.22 m
E Max. dumping height	15' 9" 4.80 m	16' 11" 5.16 m
F Digging depth – 8' (2.44 m) level bottom	10' 11" 3.33 m	12' 5" 3.79 m
G Bucket wrist angle	178°	178°
H Max. vertical wall depth	9' 0" 2.75 m	10' 6" 3.19 m

Buckets

Bucket Type	Capacity	Width Outside Lip	Weight	# Teeth	Arms 5' 8-1/2" (1.74 m)	Arms 7' 2" (2.18 m)
ESCO	.24 cu. yd. (.18 m³)	18" (457 mm)	420 lb. (190 kg)	3	H	H
	.34 cu. yd. (.26 m³)	24" (610 mm)	490 lb. (222 kg)	4	H	M
	.45 cu. yd. (.34 m³)	30" (762 mm)	546 lb. (248 kg)	5	M	L

Approval Code For Arm/Bucket Combinations

H ____ Heavy material (up to 3,370 lbs./cu. yd.)

M ____ Medium material (up to 2,700 lbs./cu. yd.)

L ____ Light material (up to 2,020 lbs./cu. yd.)

Selectable Working Modes

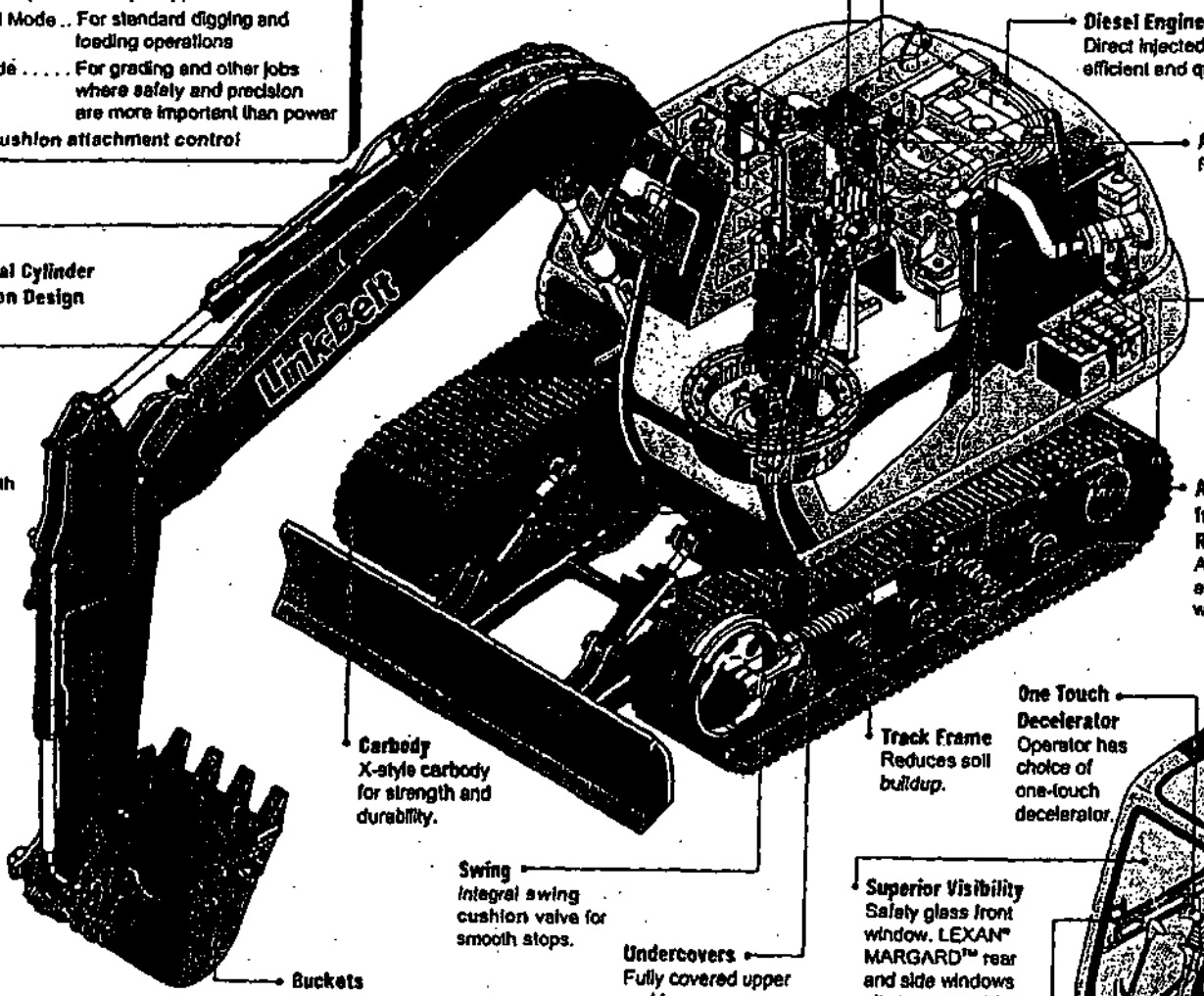
- Two selectable working modes. The mode selection system enables the operator to program the machine's speed to the job application:

S: Standard Mode .. For standard digging and loading operations

L: Light Mode ..... For grading and other jobs where safety and precision are more important than power

- Full time cushion attachment control

Quantum
SERIES EXCAVATORS



Nephron Oil Filtration System
Cleans the hydraulic fluid of condensation and all contaminants over one micron in diameter.

Boom Holding Valves

Diesel Engine
Direct injected, reliable, fuel efficient and quiet.

Auxiliary Spool
For allied attachments.

Integral Cylinder Cushion Design

Long Undercarriage
LC undercarriage with heavy duty excavator style components.

Attachment
New design, heavy duty box section attachment with central lube bank.

Alternating Inner/Outer Flanged Rollers
Assures proper rail engagement; filled with synthetic oil.

Operator's Control Station
Mounted on six fluid mountings with heater, oscillating fan, seat belt, horn, dome light, AM/FM radio, digital clock, and 3 safety control lockouts, including a gate lock safety shutoff.

Carbody
X-style carbody for strength and durability.

Track Frame
Reduces soil buildup.

One Touch Decelerator
Operator has choice of one-touch deceleration.

Operator's Seat
Reclining, fully suspended seat for all day comfort.

Swing
Integral swing cushion valve for smooth stops.

Superior Visibility
Safety glass front window. LEXAN® MARGARD™ rear and side windows eliminate need for vandal covers.

Undercovers
Fully covered upper and lower.

Buckets
Wide variety of quality Esco buckets with Super V tooth system.

Illuminated LCD Service Monitor

Two Speed Travel
Low and high speed controlled by foot switch.

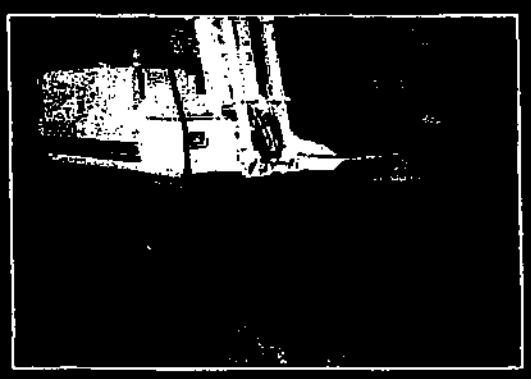
Control Console

Quantum

2650

SPECIFICATIONS

28,400 lbs. (12 900 kg) Operating Weight



2650 Quantum Specifications

Engine

Isuzu 4BG1T turbocharged, water cooled, 4-cycle diesel, 4 cylinder, 235 CID (4 329 cc), 4.13" (105 mm) bore x 4.92" (125 mm) stroke.

SAE net horsepower ..... 65 HP (63 kW) @ 2,200 rpm
Maximum torque ..... 212 ft-lbs. (29.3 kg-m or 287 N-m) @ 1,600 rpm
Starter ..... Electric, 24V, 4.5 kW
Alternator ..... 40 amp
Air cleaner ..... Double element
Governor ..... Variable speed, mechanical

Hydraulic System

Two variable displacement axial piston pumps and one gear pump for pilot controls, with Link-Belt Intelligent Quantum (IQ) Control. Link-Belt IQ Control includes: four selectable working modes, presettable attied attachment work mode, free swing, one-touch decelerator, auto idling system, power up mode, selectable cushion attachment control, and three safety lockout switches including gate lock.

Hydraulic Pumps
Two variable volume piston pumps provide power for attachment, swing and travel.

Maximum flow ..... 2 x 32 gpm (2 x 121 l/min)
Pilot pump max. flow ..... 5.3 gpm (20 l/min)

Relief Valve Settings

Boom/arm/bucket ..... 4,550 psi (320 kg/cm²)
In Power Up Mode ..... 4,980 psi (350 kg/cm²)
Swing circuit ..... 4,050 psi (285 kg/cm²)
Travel circuit ..... 4,980 psi (350 kg/cm²)

Hydraulic Cylinders – number of cylinders – bore x rod x stroke.

Boom ..... 2 – 3.9" x 3.0" x 42.6" (100 mm x 75 mm x 1 081 mm)
Arm ..... 1 – 4.5" x 3.1" x 47.4" (115 mm x 80 mm x 1 205 mm)
Bucket ..... 1 – 3.7" x 2.8" x 36.4" (95 mm x 70 mm x 924 mm)

Filtration

Nephron filter ..... 1 micron
Return, pilot, drain filter ..... 10 micron
Suction filter ..... 105 micron

Control Valve One 3-spool valve and one 4-spool valve with auxiliary spool.

Cab and Controls

Cab mounted on 6 fluid filled mountings. Features include a safety glass front window and LEXAN® MARGARD™ rear and side windows, reclining/sliding cloth upholstered suspension seat with headrest and armrests, heater, oscillating fan, AM/FM radio, cigarette lighter, pop-up skylight window, and intermittent wiper with washer. Front window slides upward for storage and the lower front window is removable. Control levers are located in 4-position tilting control consoles. Reliable soft-touch switches. Easy-to-read illuminated LCD service monitor keeps operator in touch with critical machine functions.

Swing

Planetary reduction powered by axial piston motor. Internal ring gear with grease cavity for swing pinion. Swing bearing is single-row shear type ball bearing. Swing cushion valve and dual stage relief valves for smooth swing deceleration and stops. Mechanical disc swing brake.

Swing speed ..... 0 – 13.4 rpm
Tail swing ..... 6' 9" (2.05 m)
Swing torque ..... 24,370 ft.-lbs. (3 370 kg-m)

Undercarriage

X-style carbody is integrally welded for strength and durability. Grease cylinder track adjusters with shock absorbing springs. LC undercarriage with sealed track, lubricated rollers and idlers. Triple grouser track shoes.

Carrier rollers ..... 1 per side
Track rollers ..... 6 per side
Shoes ..... 44 per side
Shoe width ..... 24" (600 mm)
Ground pressure ..... 5.0 psi (.35 kg/cm²)

Alternating inner and outer flanged rollers are used to assure proper track rail to roller engagement.

Travel System

Three-speed independent hydrostatic travel with compact axial piston motors for increased performance. Hydraulic motor powered output shaft coupled to a planetary reduction unit and track sprocket. All hydraulic components mounted within the width of side frame. Travel speeds selected by floor mounted foot switch.

Automatic Downshift: When operating in difficult travel conditions or on slopes, travel motor automatically downshifts from high speed to mid-range speed for increased tractive effort. Machine will automatically return to high speed after traveling out of difficult terrain.

Max. travel speed ..... 1.4/2.4/3.4 mph (2.2/3.8/5.5 km/h)
Traction force ..... 22,270 lbs. (10 100 kg)
Gradeability 70%

Spring applied, hydraulically released disc parking brake built into each motor. Each travel motor equipped with counterbalance valve to prevent overspeeding down an incline and dual stage reliefs for smooth starts and stops.

Lubricant & Coolant Capacity

Hydraulic tank ..... 19 gal. (73 liters)
Hydraulic system ..... 33 gal. (124 liters)
Final drive (per side) ..... 0.8 gal. (3 liters)
Swing drive ..... 0.6 gal. (2.2 liters)
Engine ..... 3.2 gal. (12.1 liters)
Fuel tank ..... 63 gal. (240 liters)
Cooling system ..... 4.9 gal. (18.4 liters)

Attachment

Available Arms	Digging Force
• 8' 2" (2.50 m)	13,450 lbs. (6 100 kg)
	In Power Up Mode – 14,550 lbs. (6 600 kg)
• 9' 10" (3.00 m)	12,130 lbs. (5 500 kg)
	In Power Up Mode – 13,230 lbs. (6 000 kg)
Bucket digging force	17,420 lbs. (7 900 kg)
	In Power Up Mode – 19,180 lbs. (8 700 kg)

Blade

8' 6" (2.59 m) wide, hydraulically controlled by use of a lever in the operator's cab. Blade will cut 1' 2" (369 mm) below grade. Lower edge of blade raises 1' 2" (368 mm) above grade.

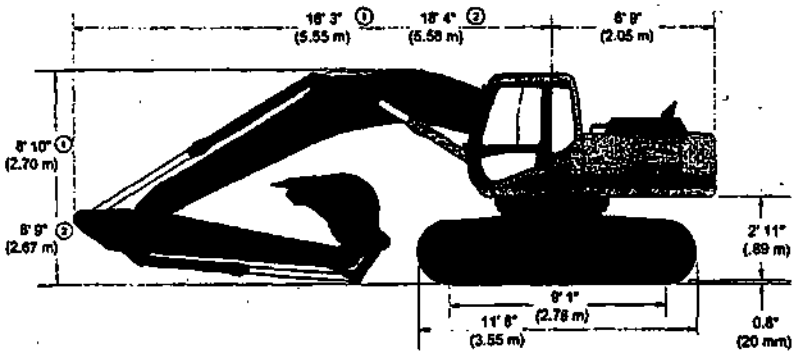
Operating Weight

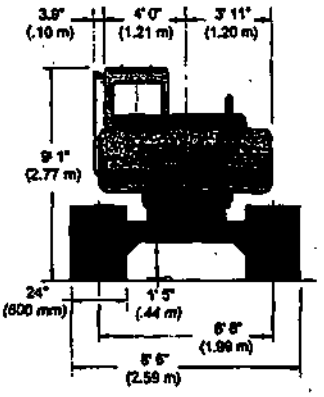
Working weight with 24" (600 mm) shoes, 8' 2" (2.50 m) arm and 909 lb. (413 kg) bucket ..... 28,400 lbs. (12 900 kg)

Standard Equipment

- Isuzu 4BG1T diesel engine
- 40 amp alternator
- Double element air filter
- 24-volt starting system; battery lighting system, sealed heavy duty electrical connectors
- Intelligent Quantum (IQ) Control with manual backup system
- Self-diagnostic system
- Nephron filtration system
- Four selectable working modes
- One-touch decelerator
- Auto idling system
- Auto engine warm up
- Power up mode
- Integral cylinder cushioning
- Cushion attachment control
- Boom holding valve
- Free swing control
- 3-speed hydrostatic travel
- Travel alarm
- Spare accessory valve
- Sliding/reclining, suspension cloth upholstered seat with 4-position tilting consoles and sliding platform
- Illuminated LCD service monitor
- Heater, fan, seat belt, horn, dome light, AM/FM radio, digital clock, floor mat, cigarette lighter
- Safety glass front window with automatic lock and intermittent windshield wiper and washer, large LEXAN® rear/side windows
- Vandalism locks/guarding
- Hand grab rails both sides
- Upper and lower undercovers
- LC undercarriage
- 5,580 lbs. (2 530 kg) counterweight
- Quick disconnects in hydraulic system for easy pressure checking

Dimensions

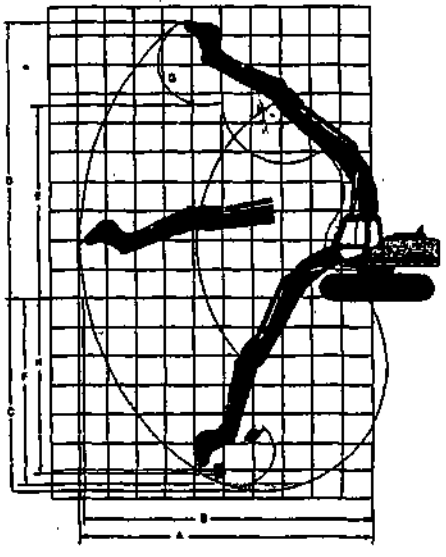




① Machine equipped with 8' 2" (2.50m) arm.
② Machine equipped with 9' 10" (3.00m) arm.

Note: Arm cylinder must be repinned in travel position to obtain transport height and length shown for 9' 10" (3.00m) arm.

Working Ranges



		15' 5" (4.70 m) Boom	
		8' 2" Arm 2.50 m	9' 10" Arm 3.00 m
A	Max. digging radius	27' 4" 8.34 m	28' 10" 8.79 m
B	Max. digging radius @ ground level	26' 11" 8.20 m	28' 5" 8.66 m
C	Max. digging depth	18' 3" 5.55 m	19' 10" 6.05 m
D	Max. digging height	29' 10" 9.09 m	30' 10" 9.41 m
E	Max. dumping height	22' 0" 6.70 m	23' 0" 7.02 m
F	Digging depth – 8' (2.44 m) level bottom	17' 6" 5.34 m	19' 3" 5.87 m
G	Bucket wrist angle	182°	182°
H	Max. vertical wall depth	16' 4" 4.98 m	17' 10" 5.44 m

Buckets

Bucket Type	Capacity	Width Outside Lip	Weight	# Teeth	Arms 8' 2" (2.50 m)	Arms 9' 10" (3.00 m)
ESCO STDP	.48 cu. yd. (.37 m³)	24" (610 mm)	816 lb. (371 kg)	4	H	H
	.625 cu. yd. (.48 m³)	30" (762 mm)	916 lb. (415 kg)	4	H	H
	.75 cu. yd. (.57 m³)	36" (914 mm)	1,031 lb. (468 kg)	5	M	L
	.875 cu. yd. (.67 m³)	42" (1 067 mm)	1,089 lb. (494 kg)	6	L	N/A
ESCO HDP	.48 cu. yd. (.37 m³)	24" (610 mm)	1,081 lb. (490 kg)	4	H	H
	.625 cu. yd. (.48 m³)	30" (762 mm)	1,195 lb. (542 kg)	4	H	M
	.75 cu. yd. (.57 m³)	36" (914 mm)	1,348 lb. (611 kg)	5	M	L
	.875 cu. yd. (.67 m³)	42" (1 067 mm)	1,461 lb. (663 kg)	5	L	N/A

Approval Code For Arm/Bucket Combinations

H ..... Heavy material (up to 3,370 lbs./cu. yd.)

M ..... Medium material (up to 2,700 lbs./cu. yd.)

L ..... Light material (up to 2,020 lbs./cu. yd.)

N/A ..... Not applicable

2650 Quantum Lifting Capacities

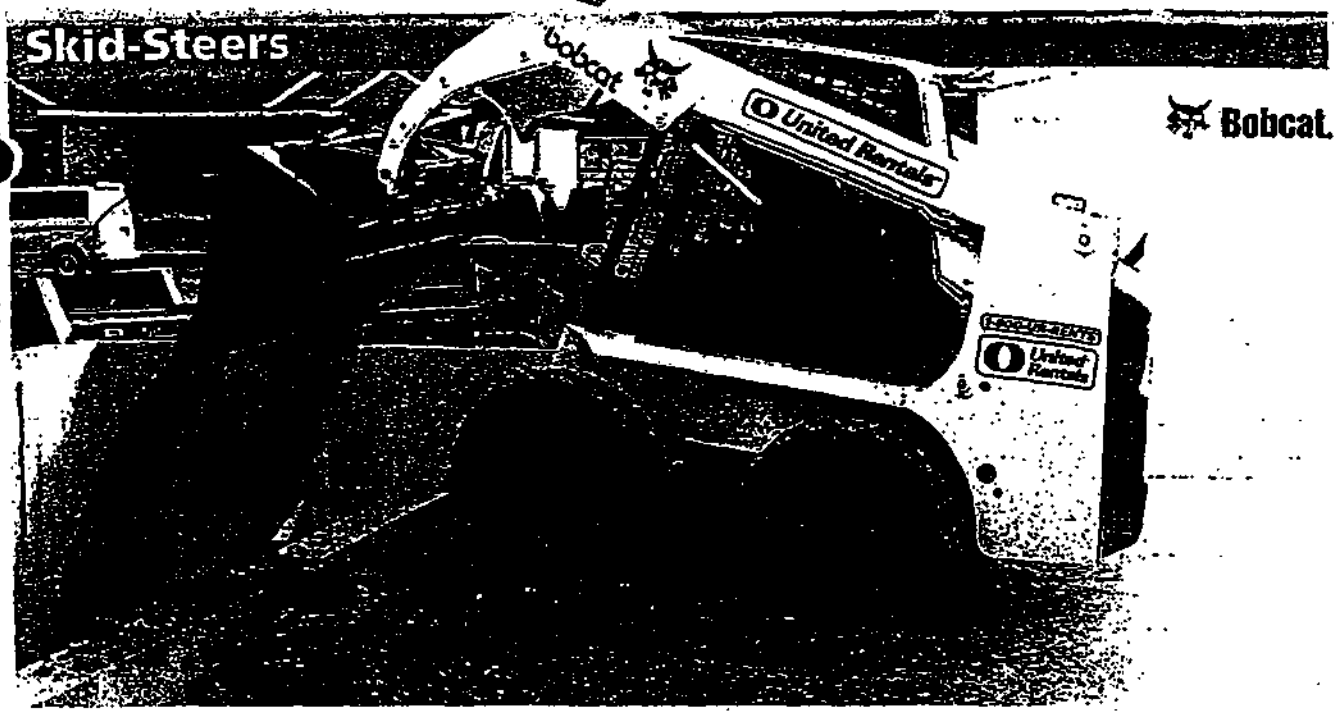
8' 2" (2.50 m) Arm Equipped with 909 lb. (413 kg) Bucket Power Up Mode Applied

Bucket Hook Height		Radius of Load											
		5' 0" (1.52 m)		10' 0" (3.05 m)		15' 0" (4.57 m)		20' 0" (6.10 m)		25' 0" (7.62 m)		Capacity at Max. Reach	
		End	Side	End	Side	End	Side	End	Side	End	Side	End	Side
+20' 0" (6.10 m)	lbs.					5,400*	5,400*					3,050*	3,050*
	kg					2 449*	2 449*					1 383*	1 383*
+15' 0" (4.57 m)	lbs.					5,900*	5,900*	6,000*	4,450			2,900*	2,900*
	kg					2 676*	2 676*	2 722*	2 019			1 315*	1 315*
+10' 0" (3.05 m)	lbs.	13,450*	13,450*	9,600*	9,600*	7,600*	7,000	6,000	4,300			2,900*	2,600
	kg	6 101*	6 101*	4 445*	4 445*	3 402*	3 175	2 722	1 950			1 315*	1 179
+5' 0" (1.52 m)	lbs.			15,300*	12,100	8,200	6,450	5,750	4,050			3,050*	2,450
	kg			6 940*	5 489	4 173	2 926	2 608	1 837			1 383*	1 111
Ground Line	lbs.	5,850*	5,850*	17,250	11,150	8,700	6,000	5,500	3,850			3,400*	2,650
	kg	2 654*	2 654*	7 825	5 058	3 946	2 722	2 495	1 746			1 542*	1 157
-5' 0" (1.52 m)	lbs.	10,950*	10,950*	17,200	11,100	8,500	5,900	5,400	3,750			4,050*	2,950
	kg	4 967*	4 967*	7 802	5 035	3 856	2 631	2 449	1 701			1 837*	1 338
-10' 0" (3.05 m)	lbs.	17,450*	17,450*	17,200*	11,300	8,500	5,850	5,450	3,800			5,450*	4,000
	kg	7 915*	7 915*	7 802*	5 126	3 856	2 654	2 472	1 724			2 472*	1 814
-15' 0" (4.57 m)	lbs.			13,350*	11,750	8,200*	6,150						
	kg			6 056*	5 330	3 720*	2 790						

9' 10" (3.00 m) Arm Equipped with 772 lb. (350 kg) Bucket Power Up Mode Applied

+20' 0" (6.10 m)	lbs.							4,150*	4,150*			3,050*	3,050*
	kg							1 882*	1 882*			1 383*	1 383*
+15' 0" (4.57 m)	lbs.					4,950*	4,950*	5,350*	4,600			2,900*	2,700
	kg					2 245*	2 245*	2 427*	2 087			1 315*	1 225
+10' 0" (3.05 m)	lbs.			7,850*	7,850*	6,600*	6,600*	6,000	4,400	4,100	2,900	2,900*	2,400
	kg			3 561*	3 561*	2 994*	2 994*	2 722	1 996	1 860	1 315	1 315*	1 089
+5' 0" (1.52 m)	lbs.			13,550*	12,600	8,850*	6,600	5,850	4,150	4,000	2,800	3,050*	2,250
	kg			6 146*	5 715	4 014*	2 994	2 654	1 882	1 814	1 270	1 383*	1 021
Ground Line	lbs.	6,150*	6,150*	17,200*	11,300	8,600	6,100	5,600	3,900	3,900	2,700	3,400*	2,350
	kg	2 767*	2 767*	7 802*	5 126	3 992	2 767	2 540	1 769	1 769	1 225	1 542*	1 066
-5' 0" (1.52 m)	lbs.	9,900*	9,900*	17,100	11,000	8,500	5,800	5,400	3,750			3,800	2,650
	kg	4 491*	4 491*	7 757	4 990	3 856	2 631	2 449	1 701			1 724	1 202
-10' 0" (3.05 m)	lbs.	15,050*	15,050*	17,250	11,100	8,450	5,800	5,400	3,750			4,850	3,400
	kg	6 827*	6 827*	7 825	5 035	3 833	2 631	2 449	1 701			2 200	1 542
-15' 0" (4.57 m)	lbs.	23,950*	23,950*	15,100*	11,450	8,700	6,000						
	kg	10 864*	10 864*	6 849*	5 194	3 946	2 722						

Skid-Steers



Bobcat

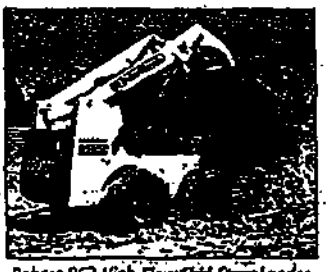
Skid-Steer Loaders

15 to 70 HP • Compact & Highly Maneuverable

United Rentals offers you the world's largest fleet of dependable Bobcat skid-steer loaders. From the farm to the construction site to the industrial plant, these compact and maneuverable machines are ready to tackle your jobs fast and cost-effectively. Call United Rentals–we have the machine you need in stock and ready to go.

The Bobcat 753 and 763 machines are excellent for digging, grading and leveling. Fast travel speed means shorter cycle times. The larger 863 and 873 machines are suited for the toughest applications and for use with special high-performance high-flow hydraulic attachments. For really tight work areas the Bobcat 453 has a narrow 36-inch wide by 72-inch high frame that lets you easily get into backyards and interior demolition sites.

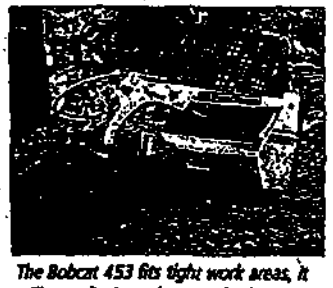
A wide variety of attachments allow each of these machines to do more than just "load" material. Quick-change attachment systems give you the ability to quickly and easily connect attachments. Available separately or as part of a skid loader package. Please consult with your United Rentals representative for specific attachment availability and application information.



Bobcat 863 High-Flow Skid-Steer Loader is for the toughest jobs.

Use the Bobcat 773 with an optional auger for landscape and post work.

At 43.5 HP, the Bobcat 753 Skid-Steer Loader has a rated capacity of 1350 lbs.



The Bobcat 453 fits tight work areas, it will even fit through a standard gate.

Model Number	453	753	763	773	863 H	873	1300D
Manufacturer	Bobcat	Bobcat	Bobcat	Bobcat	Bobcat	Bobcat	Skat Trak
Power	15.7 HP	43.5 HP	46 HP	46 HP	73.5 HP	73 HP	49.5 HP
Travel Speed	5.2 mph	6.6 mph	7 mph	7 mph	7.2 mph	7.2 mph	6.4 mph
Height to Bucket Pin	92.4 in	109.1 in	114.1 in	118.2 in	121 in	124.3 in	113 in
Cat Class	903-0015	903-0040	903-0045	903-0060	903-0070	903-0070	903-0045

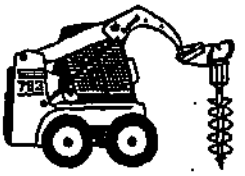
If You Don't See It, Call Us. We Have What You Want! • Contact Your Local Branch For Current Rates

United Rentals

Skid-Steer Attachments

4-in-1 Bucket

Perform a wide variety of job functions with this one attachment. Ideal for dozing, grappling, leveling, digging, loading and dumping.
Cat Class: 903-5225

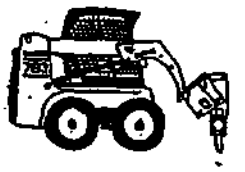


Auger

Dig 8-, 12-, 18-, 24-, 30- or 36-inch wide holes with speed and plumb-line accuracy. These hydraulic augers bite in with high torque power for posts and poles.
Cat Class: 903-5500

Backhoe

Turn your skid-steer loader into a powerful excavator. Maximum digging depths range from 5 to 11 feet, please call for details.
Cat Class: 903-5800



Breaker

Break up concrete quickly and easily. These hard-hitting hydraulic breakers are available in 250 or 500 lbs. with low recoil operating cycle.
250# Cat Class: 903-5350
500# Cat Class: 903-5355

Broom

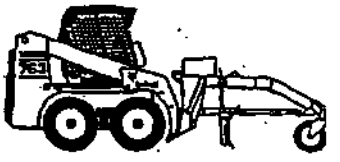
Hydraulically-driven angle brooms can be used to sweep driveways, sidewalks, parking lots, loading docks, warehouses and light snow.
Cat Class: 903-5440

Brush Mower

The powerful cutting and mulching action of the dual blade Brushcat will clear a 5 ft. wide path in the thickest of grass and brush, will cut up to 3" dia. branches and saplings.
Cat Class: 903-5305

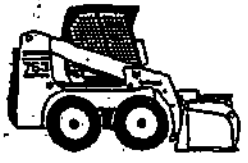
Forklift

Hook on a pallet fork and move your bagged or bulk material fast. Ideal for farm chores and, industrial and landscaping applications. Also handy on the construction site.
Cat Class: 903-5410



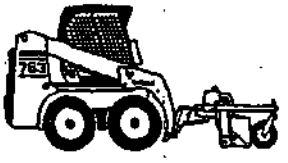
Grader

Accurate grading machine features 7 ft., six-way hydraulically controlled moldboard. Optional laser control package available for precise work.
Grader Cat Class: 903-5400
Laser Cat Class: 903-5390



Grapple

Grapple buckets and grapple forks are available for easy handling of a variety of hard-to-manage materials in the industrial setting or on the construction site.
Cat Class: 903-5220
Cat Class: 903-5200 w/bucket



Landscape Rake

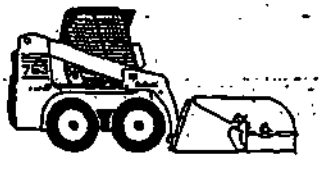
Separate rocks and debris, grade, level, fill—even tear out old sod. Produces perfect bed for seeding or sodding. 72 in. width covers tracks traveling in reverse.
Cat Class: 903-5385

Land Rake w/Bucket

Ideal for ground preparation, seeding, sodding, smoothing and finishing, landscape rakes break up lumpy soil and pick up rocks as small as 1/2-inch. One-pass coverage.
Cat Class: 903-5395

Planer

The Bobcat Planer attachment quickly mills asphalt or concrete surfaces. Ideal for street repair. Various sizes of drums are available.
Cat Class: 903-5330



Sweeper

Sweep clean and scrape mud going forward or in reverse. Reversible cutting edges break up caked-on mud, while the sweeper's poly bristles deposit dirt & debris in the container which can be dumped when full.
Cat Class: 903-5435

Tracks

Float over soft, sandy or muddy ground and get better traction on slippery surfaces with these over-tire metal tracks.
Cat Class: 903-5701

Trenchers

Features adjustable digging depth capability. Sideshift allows you to get close to walls. Designed specifically to take advantage of the high flow hydraulics capabilities of the Bobcat 763H and 853H skid-steer loaders.
Cat Class: 903-5310

U-Dig Blade

Dig-it coming or going. Makes a "U"-shaped dig that's great for drainage ditches. Not only digs in forward and reverse, it also has a multitude of uses to increase your job site capabilities, productivity and profits.
Cat Class: 903-5425

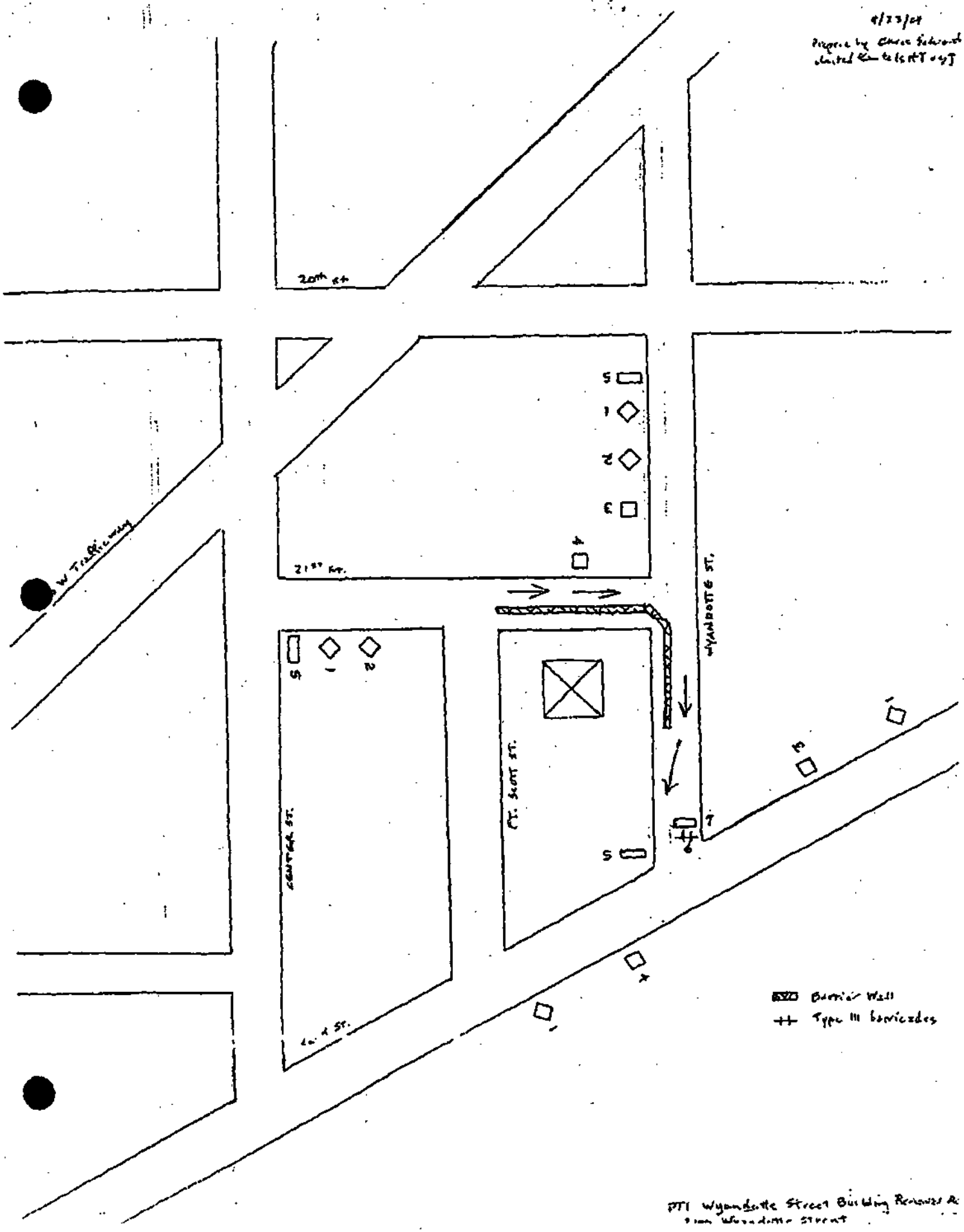
Place Your Order Now at 1-800-UR-RENTS (1-800-877-3687) or Online at www.unitedrentals.com

United Rentals

APPENDIX I

4/23/04

Prepared by Charles Schwab Limited [illegible]

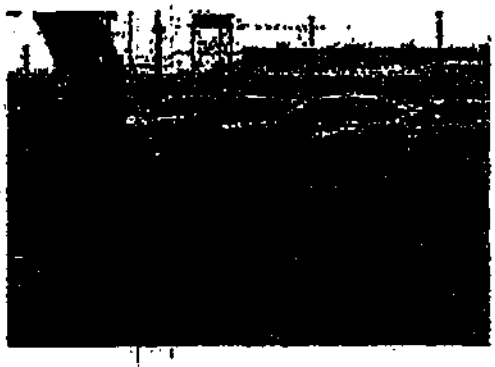


PTI Wyandotte Street Building Renovation
from Wyandotte Street

GUARDIAN PRODUCTS

Call Armorcast Today at (818) 982-3600

GUARDIAN 350 HIGHWAY BARRIERS
PART # P6000142350



The Guardian™ 350 Highway Barrier is the best performing, portable, water ballasted barrier on the market today. With the factory installed metal reinforcement, the polyethylene Guardian™ 350 Highway Barrier meets NCHRP 350-TL-2, 70 km/h (43.5 mph) standards and TL-3, 100 km/h (62.1 mph) standards. Let the test results speak for themselves when deciding how to best protect your workers.

The Guardian™ 350 Highway Barrier, as a longitudal system, has been successfully crash tested to comply with the requirements of the NCHRP Report 350, Recommended Procedures for the Safety Performance Evaluation of Highway Features, Test Level 2 and Test Level 3. The portable nature of the Guardian™ 350 Highway Barrier has geared it for use in construction work zones where vehicle speeds are to be 100 km/h (62.1 mph) or less

- Available in Safety Orange, per your local Department of Transportation mandates
- 42" tall x 24" wide x 72" long
- An estimated 275 pounds empty, the Guardian™ 350 Highway Barrier, when in use with the minimum mandated 198 linear feet (33 barriers) requirement, provides for 47,000 pounds of car stopping protection once ballasted
- The Guardian™ 350 Highway Barrier provides superior value when you consider the per pound cost of protection received. We offer the heaviest, plastic portable barrier on the market. Designed for work zone protection and traffic channelling the highly visible Guardian™ 350 Highway Barrier is also ideal for crowd control and entry/exit security. A line of positive protection may be set without heavy lifting equipment.
- Call factory for further details including Federal Highway Administration approvals and installation instructions

FHWA defines a longitudinal barrier as a: "devise whose primary functions are to PREVENT VEHICULAR PENETRATION and to SAFELY REDIRECT an errant vehicle away from a roadside or median hazard."

VIEW MORE GUARDIAN PRODUCTS

United Rentals
Highway Technologies, Inc.
4410 S. 40th Street, Unit E
St. Joseph, MO 64503
Tel: 816 387-9400
Fax: 816 387-9403
www.unitedrentals.com

United Rentals
Highway Technologies, Inc.

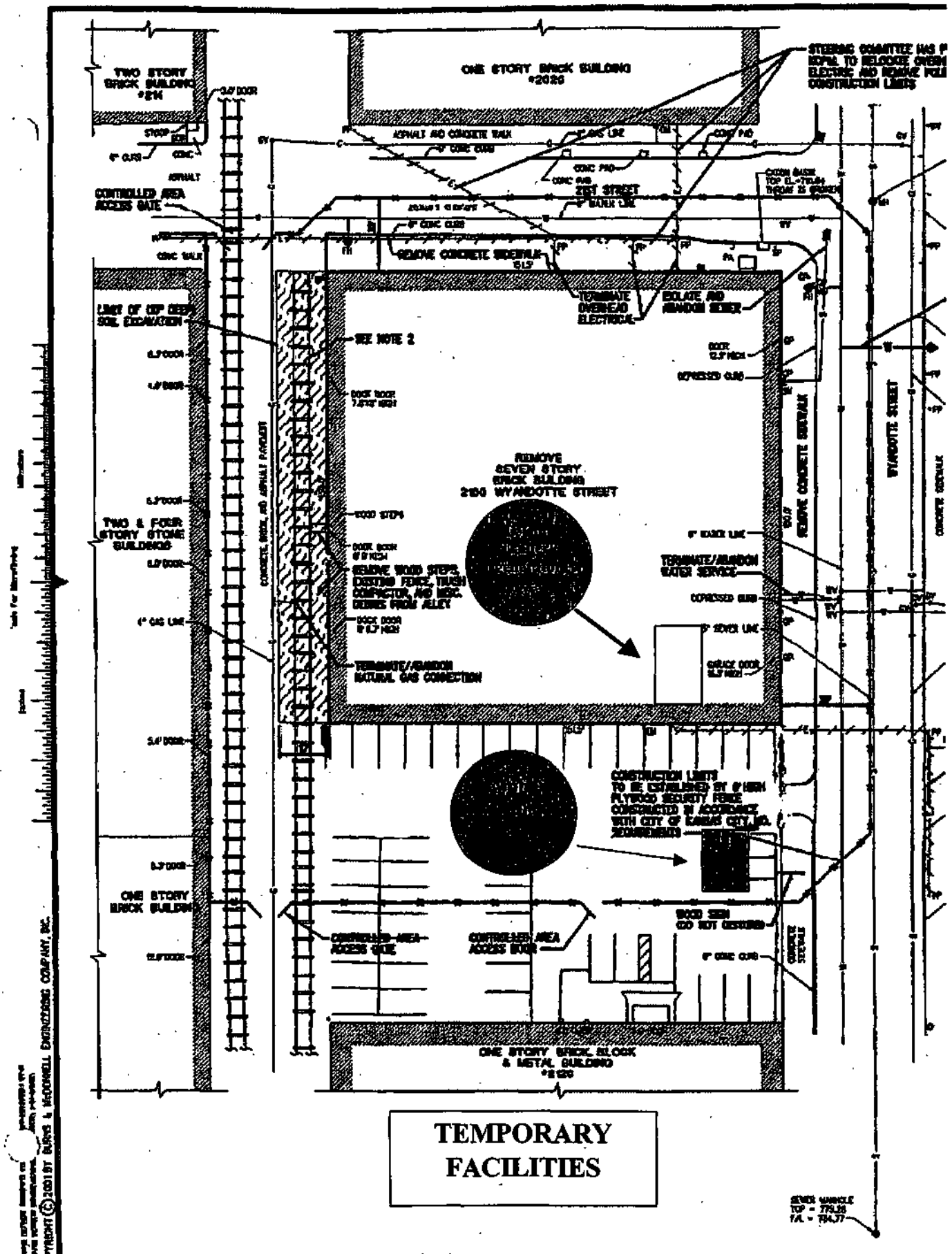
PTI Wyandotte Street Building Removal Action
2100 Wyandotte Street
City of Kansas City, Missouri

Legend

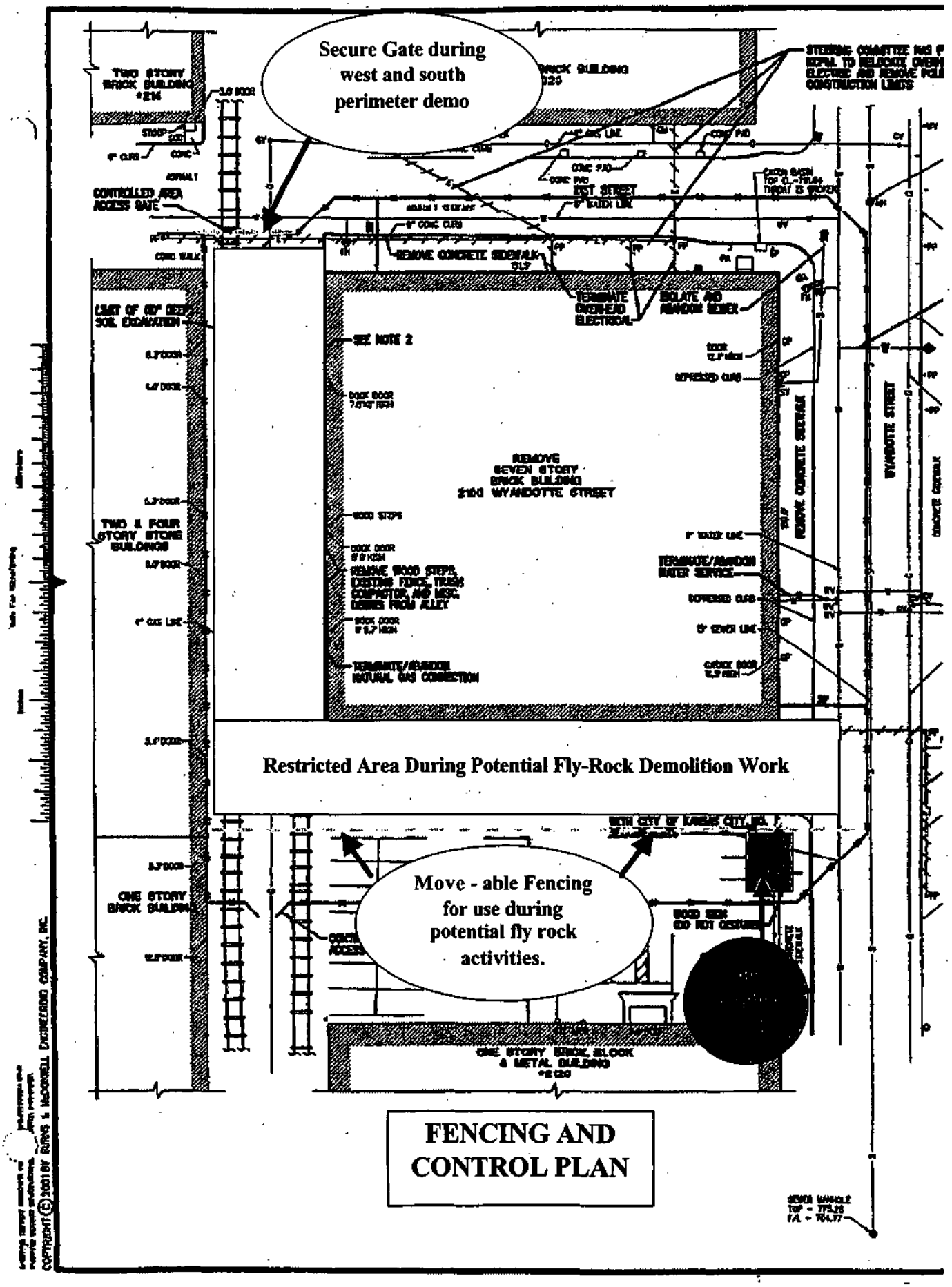
1. Road Construction Ahead W20-1, 48"x48" DG Orange mounted on skids
2. One Lane Road Ahead W20-4, 48"x48" DG Orange mounted on skids
3. No Right Turn Symbol R3-1R, 30"x30" HI mounted on skid
4. No Left Turn Symbol R3-1L, 30"x30" HI mounted on skid
5. Sidewalk Closed Use Other Side R9-10 HI mounted on skid
6. Type III Barricades with (2) Type A Flashers
7. Road Closed R11-2 48"x30" HI mounted on skid

Signs shall be deployed as shown on the site map on the following page.. Barrier Wall shall be placed in the center of 21st St. from the intersection with Ft. Scott St. to the center of the intersection of 21st St. with Wyandotte.. Additionally, barrier wall shall run down the center of Wyandotte from the intersection with 21st St. to a point directly East of the south face of the building at 2100 Wyandotte.
Traffic on Wyandotte between 20th and 22nd St. will only be allowed in the southbound direction. Traffic on 21st. St. between Wyandotte and Center St. will only be allowed in the eastbound direction.
Sidewalk on the West side of Wyandotte St. to be closed from 20th St. to 22nd St.
Sidewalk on the North side of 21st St. to be closed from Center St. to Wyandotte St.

APPENDIX J



TEMPORARY FACILITIES


Secure Gate during west and south perimeter demo
REMOVE SEVEN STORY BRICK BUILDING 2100 WYANDOTTE STREET
Restricted Area During Potential Fly-Rock Demolition Work
Move - able Fencing for use during potential fly rock activities.
FENCING AND CONTROL PLAN

APPENDIX K

A. J. MILLER
& ASSOCIATES
STRUCTURAL ENGINEERING CORPORATION
5588 FREMONT STREET
OAKLAND, CALIFORNIA 94608
(510) 655-8401
FAX 655-8425

W Y A N D O T T E B U I L D I N G D E M O L I T I O N
Memorandum 04211-02
July 13, 2004

CLEVELAND WRECKING CO.
628 East Edna Place
Covina, CA
91723
FAX 626-967-1479

Attention: Jeff Droubay

Subject: Concrete Floor Demolition

We have reviewed the email information from Kelly Hammond together with the original building drawings. Our review indicates that the 5.5 inch thick floors, floor joists, beams and columns can support the loads from a LINK BELT 1600 excavator. However, the 4.5 inch thick concrete roof deck is too weak to support the track loads from the excavator. The same problem occurs at the 7th floor, where the top of the concrete floor has been scarred or removed. The extent of the scarred area is not defined in the email.

In both areas, the flexural capacity of the floor/roof slab is diminished. We advise operating the excavator on ½ plate or 1-1/8 inch plywood, in these areas. This will preclude flexural failure.

Please call if you have any questions or need any additional information. Also, please advise us if you would like us to be present at the site during the start-up, or any other phase, of the demolition.

Best Regards:

A.J. Miller

A.J. MILLER & ASSOCIATES
STRUCTURAL ENGINEERING CORPORATION
6565 FREMONT STREET • OAKLAND, CALIFORNIA 94608 • (510) 655-8401 • FAX 655-8425

COMPUTATIONS
NO. 1 OF ____ SHEETS

DATE 13 JULY 04 CLIENT CLEVELAND WRECKING CO JOB NO. 04261
BY ____ CHK ____ PROJECT WYANDOTTE BLDG, K.C.

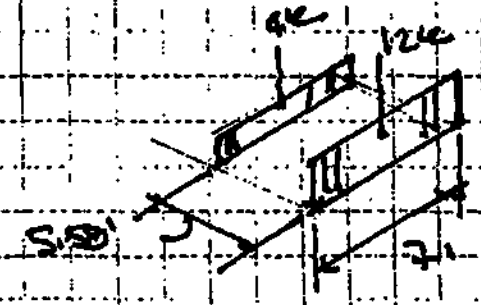
REGISTERED PROFESSIONAL ENGINEER
A. J. MILLER
No. 2041
Exp. 9-30-05
STRUCTURAL
STATE OF CALIFORNIA

STATE OF MISSOURI
DONALD [illegible]
NUMBER
E-2000164448
JUL 16 2004
REGISTERED PROFESSIONAL ENGINEER

DEAD LOAD - (5½" SLAB, JOISTS AND)
USE W = 100 PSF

LIVE LOAD - LINK BELT 1600 EXCAVATOR
OPR WT = 160000#
CONSIDER 2 CASES

(1) 75% ON ONE TRACK

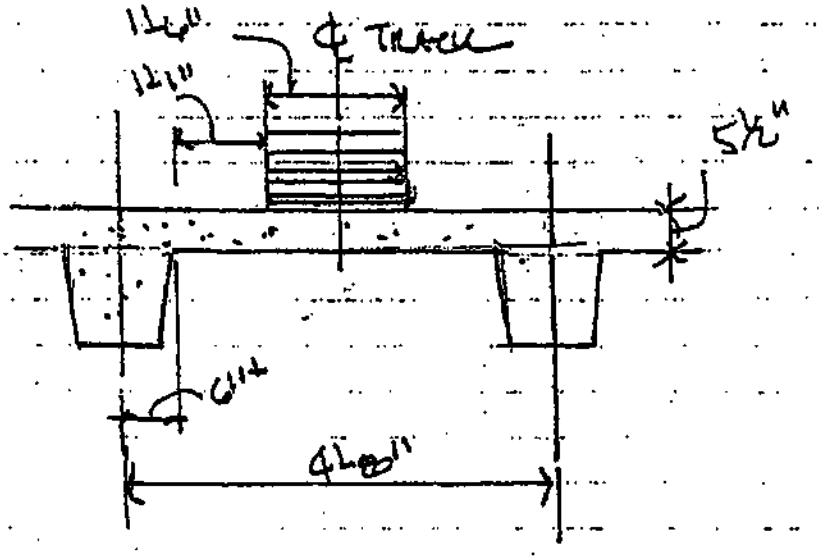


TRACK - 1.5 x 7'
CONTACT = 5.50'

(2) LOAD ON TOE

FRAMING.

FLOOR SLAB: (5½" RC FILL OVER METAL DECK)



PUNCHING ~ $P_{max} = 12^K$

$A_{req} = \frac{12}{2.85\sqrt{f'_c}} = \frac{12}{2.85\sqrt{7.5}} = 1.22\ in^2$

$\frac{1}{3}\sqrt{f'_c} = 11\ psi$ OK

BENDING ~ $\frac{8^K}{7'} \Rightarrow w_{max} = \frac{8^K}{7' \times 1/2} = 2.28\ ^K/_{ft}$

$M_{DL} = \frac{2.28}{4}(1.08')$

$= 1.24\ ^{K-ft}/_{ft}$

W/ FINISH, $M_{DL} = 0.67 + 1.24 = 0.83\ ^{K-ft}/_{ft}$

ALSO, DISTRIBUTED OVER $7' + 2 \times 1' \cdot 9'$

UNIT REINFORCEMENT IS $M/_{ft} = 0.83 \times \frac{7}{9} = 0.65$

$S_x = \frac{12}{2}(5 \cdot 7.1)^2 = 60.5\ in^3$

5598 FREMONT STREET • OAKLAND, CALIFORNIA 94608 • (510) 655-8401 • FAX 655-8425
DATE 12 JUL 04 CLIENT CLEVELAND JOB NO. 0421
BY ____ CHK ____ PROJECT WYNN PORTE

$f_b = \frac{0.45 \times 42}{60.5}$

$\therefore f_b = 129$ psi ~ ok

ROOF SLAB (4½")

BENDING ~ $M_{max} \leq \frac{S \cdot F}{D \cdot T} \times 11 = 13.4$ kips ok

BENDING – M_{max} 1½" STEEL DK
1'-6" plyw. FOR SAFETY

1½" DK ~ SAY TAKES 100% OF M_{ss}

IF $M = 0.83 \times \frac{7}{8}$
$= 0.64$ K/FT

$S_x = 0.50$ in²

$f_b = 15.5$ ksi ok

1'-6" plyw: $S_x = 1$ in²/FT
ALLOW $f_b = 1800$ psi
$M_{max} = 1800$ in-#/FT

$\therefore$ SPAN $\leq 2.28 \times 7/8 \times 1/2 \times 0.89$

$x = \frac{1800}{0.89} = 2.4$

$\therefore$ ~ REDUCTION IN SLAB SPAN = 2.11 + ℓ PANEL

$M = 11" \times 0.89 \times 0.47 = 0.52$ K/FT

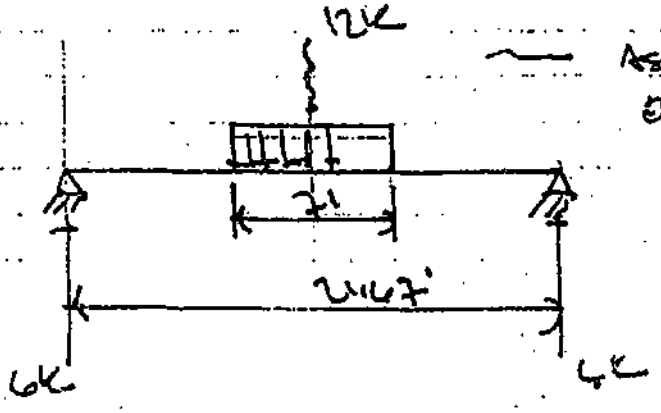
$S_x = \frac{12}{2}(4.17)^2 = 40.1$ in³

$f_b = 162$ psi ok

Joists

Floor ($12" + 1\frac{1}{2}" \times 10"$)

L = 21.67'



ASSUME TRACK OVER ONE JOIST.

$M_{DL} = 6\left(\frac{21.67}{2} - \frac{3}{4}\right) = 64.5^{FK}$

w/ PATCH. $M = 0.67 \times 64.5 = 36.5^{FK}$

$M_D = 0.10\left(\frac{21.67}{10}\right)^2 = 4.7^{FK}$

TOTAL = 41.2^{FK}

$d = 15"$

$A_s = 2 - 1" \phi$
$= 1.58 in^2$

$f_s = \frac{41.2 \times 12}{0.87 \times 15 \times 1.58}$

$= 23.8 ksi$ OK

A.J. MILLER & ASSOCIATES
STRUCTURAL ENGINEERING CORPORATION
555 FREMONT STREET • OAKLAND, CALIFORNIA 94608 • (510) 655-8401 • FAX 655-8425

COMPUTATIONS
NO. 5 OF _____ SHEETS

DATE 12 July 04 CLIENT CLEVELAND JOB NO. 0421
BY CHK PROJECT WYNDMOOR

ROOF JOISTS

SIMILAR TO FLOOR
EXCEPT 3-3/4" Ø
A = 1.32 in²

f_b = 28.99 ksi OK

BEAMS - (16" x 30")
L = 18.75' OK BY INSPECTION
SEE APPENDIX

COLS - OK BY INSPECTION