

C-018H-C7  
Revision 0

CONSTRUCTION SPECIFICATION FOR  
242-A/PUREX EFFLUENT TRANSFER LINE AND DRAIN FIELD

Work Order CR9583

OFFICIAL RELEASE  
BY C-018H IMT  
DATE 10/1/93  
STATION 37 CLERK 69

Prepared By:  
Kaiser Engineers Hanford Company  
Richland, Washington

For the U.S. Department of Energy  
Contract DE-AC06-87RL10900



APPROVED

Kaiser Engineers Hanford Company (KEH)

<u>Charles Mortimer</u>	<u>10/1/93</u>	<u>Robert B. Hoffmann</u>	<u>10-1-93</u>
Design Engineering	Date	Technical Documents	Date
<u>C.D. Eggers</u>	<u>10/1/93</u>	<u>John P. Goff</u>	<u>10-1-93</u>
Safety	Date	Environmental Engineering	Date
<u>T.D. Darp</u>	<u>10-1-93</u>	<u>M. Klein for Jeff Fanning</u>	<u>10/1/93</u>
Quality Engineering	Date	Construction	Date
<u>M. Klein</u>	<u>10.1.93</u>		
Project Management	Date		

Westinghouse Hanford Company

J.J. Noble  
Projects Department 10/1/93  
Date

RELEASED FOR CONSTRUCTION

B. R. Metzger  
U.S. Department of Energy 10-1-93  
Date



EXPIRES 5/27/94

C-018H IMT  
CONTROLLED DOCUMENT  
DIST  
DATE OCT 11 1993  
STATION 37  
NO. DC-1

## TABLE OF CONTENTS

		Total Pages
<u>DIVISION 1 - GENERAL REQUIREMENTS</u>		
Section 01010	Summary of Work	2
Section 01019	Items Furnished for Construction	2
Section 01027	Applications for Payment	4
Section 01040	Coordination	1
Section 01043	Job Site Administration	5
Section 01050	Field Engineering	1
Section 01065	Permits	2
Section 01100	Special Project Procedures	7
Section 01200	Project Meetings	2
Section 01300	Submittals	5
Section 01310	Progress Schedules	3
Section 01400	Quality Assurance	6
Section 01500	Construction Facilities and Temporary Controls	4
Section 01630	Product Options and Substitutions	4
Section 01720	Project Record Documents	3
 <u>DIVISION 2 - SITEWORK</u>		
Section 02225	Excavating, Backfilling, and Compacting for Utilities	6
Section 02235	Road Subgrade and Granular Base	5
Section 02450	Railroad Work	1
Section 02512	Hot Laid Asphaltic Concrete Paving	3
Section 02650	Piped Utilities	7
Section 02741	Disposal Field	3
Section 02935	Drainfield Stabilization	2

SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.1 INTRODUCTION

1.1.1 Project C-018H for construction of the Effluent Treatment Facility is located in the Controlled Access Area of the Hanford Site, approximately 30 road miles north of Richland, Washington.

1.1.2 This Specification is for installation of portions of the facility. Portions included are the State-Approved Land Disposal Site and the effluent disposal pipeline.

1.2 STATEMENT OF WORK

1.2.1 Scope: Work consists of furnishing labor, equipment, and materials to provide a disposal system in accordance with the Contract Documents.

1.2.2 Work Included: The following itemization is intended to be broad in scope, identifying major work elements only, and is not all inclusive.

1.2.2.1 Furnish and install approximately 32,200 feet of 8-inch PVC pipe and related appurtenances.

1.2.2.2 Furnish materials and construct effluent disposal field.

1.2.3 Work Not Included: The following items of work are not included in the Project.

1.2.3.1 Items shown on the Drawings to be done by others.

1.2.3.2 Rail and tie removal.

1.2.3.3 Restoration of ballast, ties, and rails.

1.3 SEQUENCE OF WORK

1.3.1 Work shall be accomplished in the following sequence to provide facilities for other contracts.

1.3.1.1 Install 8-inch PVC pipeline.

1.3.1.2 Construct drainfield.

1.3 DRAWINGS

1.3.1 Drawings which shown work required by the Contract Documents are listed on Drawing H-2-88745.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01019

ITEMS FURNISHED FOR CONSTRUCTION

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 The following documents, including others referenced therein, form part of this Section to the extent designated herein.

1.1.1.1 Code of Federal Regulations (CFR)

Title 30

Mineral Resources

Part 56

Safety and Health Standards--  
Surface Metal and Nonmetal  
Mines

1.2 SUBMITTALS: Not Used

1.3 GENERAL

1.3.1 Material and equipment furnished or made available for incorporation into the Work are identified in this Section. Other services and utilities provided are covered in other sections of this Specification.

1.3.2 Meet the provisions of Section 9 of the Contract General Conditions for items furnished for construction.

1.3.3 Provide KEH access to premises where items furnished for construction are stored before incorporation into the Work.

1.4 GRAVEL AND SAND

1.4.1 Unmined natural deposits are available at no cost from sites designated by KEH within 10 miles of Project site. KEH makes no representation that materials will meet physical properties required in this Specification.

1.4.2 If Contractor elects to utilize available gravel sites he shall furnish equipment and labor required to excavate, process, load, transport, and place material.

1.4.3 Material shall be used only for the Work covered by this Specification and no gravel or sand, processed or unprocessed, or concrete manufactured therefrom shall be transported off the Hanford Site.

1.4.4 Access to gravel sites and travel between gravel and construction sites shall be on roads designated by KEH and use shall be in accordance with Section 01500.

1.4.5 Operations of gravel sites shall meet the following requirements.

1.4.5.1 Confine removal of overburden and top soil to areas designated by KEH. Stabilize blow sand areas after surface has been disturbed, with ballast or other approved method to prevent wind erosion.

1.4.5.2 Make no excavation or bank cut within 100 feet of power lines, paved roads, railroads, security fences, or other permanent structures.

1.4.5.3 Excavating and processing shall be in accordance with 30CFR56. Correct operations identified by KEH to be hazardous to life or property.

1.4.5.4 Explosives are prohibited articles described in Section 56 of the Contract General Conditions and shall not be brought to the Hanford Site or proposed for use without written KEH approval.

1.4.5.5 Temporary structures are permitted at gravel site for offices, storage, or repair facilities necessary for gravel removal and processing. No facility for habitation will be permitted.

1.4.5.6 Use of gravel sites are nonexclusive. Others may also enter to excavate material required for other work.

1.4.5.7 Upon completion of operations clear gravel site of debris, temporary structures, and equipment. Grade excavated area, properly slope banks, and stabilize to prevent wind erosion. Conditions identified by KEH as not meeting these requirements shall be corrected before final acceptance of the Work.

1.4.5.8 Right to use gravel sites may be terminated by KEH for failure to meet the requirements set forth or for abandonment of operations under this Contract. Right to use gravel will terminate without notice upon completion of Work under this Contract.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

## SECTION 01027

## APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.1 REFERENCES: Not Used

1.2 SUBMITTALS: Not Used

1.3 FORMAT

1.3.1 Complete Form KEH-1026, Progress Estimate Backup, sample included. A Contractor developed substitute for this form may be used, with prior approval by KEH.

1.3.2 Complete Form KEH-0959, Monthly Estimate of Work Completed, sample included, or include the following in a letter requesting payment.

Subtotal Value of All Pay Items Completed to date (Include modifications)	\$X,XXX.XX
--	------------

Allowance for Material Stored on Site:		
Previous Net Allowance	\$X,XXX.XX	
Minus Materials Placed	\$X,XXX.XX	
Plus Materials Stored	<u>\$X,XXX.XX</u>	
Net Allowance		<u>\$X,XXX.XX</u>

Subtotal Value Completed to Date		\$X,XXX.XX
Less Previous Payments	\$X,XXX.XX	
Less Other Charges from KEH	<u>\$X,XXX.XX</u>	
Subtotal Deductions		<u>\$X,XXX.XX</u>

Total Payment Requested		\$X,XXX.XX
-------------------------	--	------------

Less Retainage at ___%		<u>\$X,XXX.XX</u>
------------------------	--	-------------------

Total Payment Allowed		\$X,XXX.XX
-----------------------	--	------------

## 1.4 APPLICATION PROCEDURE

1.4.1 Payments to the Contractor, specified in Section 15 of the Contract General Conditions, are initiated by Contractor applications, as follows.

1.4.1.1 Begin each application by completing Form KEH-1026. For lump sum contracts each application shall include, as a minimum, a breakdown of the Contract price for items scheduled and reported as required by Section 01315, and percent complete for each item.

1.4.1.2 Review backup sheets with KEH approximately 5 days before the ends of pay periods, and adjust data as required by KEH.

1.4.1.3 Finalize each application as specified in 1.3.2.

1.4.1.4 Monthly estimates are due to KEH by the 25th of the month covering work through the end of the month.

#### 1.5 PAYMENT PROCEDURE

1.5.1 Upon receipt of each application, KEH will audit data, and check for compliance with the requirements of Sections 01300, 01310, 01630, and 01720. When KEH is satisfied that Contract requirements are up-to-date, Form KEH-0959 will be signed.

1.5.2 Copies of signed forms, showing amounts of payments to be made, will be returned to the Contractor.

1.5.3 KEH will mail checks to the Contractor's designated address.

#### 1.6 ADDITIONAL DATA REQUIRED

1.6.1 When processing applications for payment and preparing payment documents, KEH may require data to substantiate and justify amounts requested. Processing of payment documents may be delayed if data is not forwarded expeditiously to KEH.

1.6.2 Requests for payment for products the Contractor has received, but has not applied or installed, shall be accompanied by invoices or other data to provide evidence that title to those products is held by the Contractor.

#### PART 2 - PRODUCTS

Not Used

#### PART 3 - EXECUTION

Not Used



<b>KAISER ENGINEERS HANFORD</b>		<b>MONTHLY ESTIMATE OF WORK COMPLETED</b>	
Contract or P.O. No.		Estimate No.	Date
Name of Contractor			
Address			
Nature of Work			
Initial Amount of Contract \$	Total Amount of Modifications to Date \$	Total Adjusted Contract Amount \$	
Description		Amount	
Estimated Work Completed to (Date)			
Less: Previous Payments	\$		
Other Charges (Explain Below)	\$		
Total Deductions		(\$	)
Adjusted Payment Requested		\$	
Less Retainage @ _____ %			
Total Payment Allowed			
SAMPLE			
<p>I certify that I have verified this periodical estimate dated _____ for \$ _____ and that to the best of my knowledge and belief it is a true and correct statement of work performed and that the contractor's statement of his account and amount due him is correct and just, and the quantities included in this estimate have been performed in full accordance with the terms and conditions of the corresponding construction documents.</p>			
FOR THE CONTRACTOR		KAISER ENGINEERS HANFORD COMPANY	
By _____		By _____ Project Manager	
By _____		By _____ Field Contract Engineer	

KEM-0959 00 (07/90)

END OF SECTION

01027 - 4

C-018H-C7  
Rev 0

SECTION 01040

COORDINATION

PART 1 - GENERAL

1.1 REFERENCES: Not Used

1.2 SUBMITTALS: Not Used

1.3 CONSTRUCTION ACTIVITIES

1.3.1 Coordinate construction activities to ensure efficient and orderly sequence of work, with provisions for accommodating items to be installed later.

1.3.2 As noted in Section 29 of the Contract General Conditions, other contracts may be under construction concurrently with the Work included in this Specification. Coordinate activities with other contractors for mutual benefit. Coordination meetings may be required in addition to progress meetings to keep parties informed of scheduled activities at interface points.

1.3.3 Certain onsite work related to Project will be performed by others. Cooperate and coordinate work to eliminate interferences and delays.

1.4 ACCESS TO WORK AFTER POSSESSION

1.4.1 Access to warranty work as specified in Section 24 of the Contract General Conditions or access to work after possession as specified in Section 20 of the Contract General Conditions will be coordinated by KEH with other contractors, and users of facility. Notify KEH in advance of proposed work to minimize disruptions.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01043

JOB SITE ADMINISTRATION

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 The following documents, including others referenced therein, form part of this Section to the extent designated herein.

1.1.1.1 American National Standards Institute (ANSI)

Z41-1983

Personnel Protection -  
Protective Footwear

Z87.1-1989

Practice for Occupational and  
Educational Eye and Face  
Protection

1.2 SUBMITTALS: Not Used

1.3 WORKING HOURS

1.3.1 Regular day shift working hours are from 7:30 am to 4:00 pm, Monday through Friday, excluding holidays.

1.3.2 For other than regular day shift work refer to Section 51 of the Contract General Conditions.

1.4 BADGE, DOSIMETER, AND ORIENTATION

1.4.1 For work within the Controlled Access Area of Hanford Site, but outside Limited Areas, badge and orientation requirements will be in accordance with Section 56 of the Contract General Conditions.

1.4.2 Work Authority Badges are sufficient inside Property Protection Areas, and Security Escorts are not required.

1.4.3 Badges will not be provided until notice to proceed letter has been signed and returned to KEH, supervisors have attended KEH safety training course, requirements of Section 55 of the Contract General Conditions have been received and approved by KEH, and site labor conference and preconstruction meeting specified in Section 01200 have been completed.

1.4.4 A signed Site Stabilization Agreement (General Conditions 27.2) and Contractor Badging request (KEH 0729.00) shall be completed and signed by the general contractor and each subcontractor for this project.

1.5 EMERGENCY RESPONSE DRILLS

1.5.1 Personnel working on Hanford Site shall participate in emergency response drills held approximately once each calendar quarter and lasting approximately one hour.

1.5.2 Maintain daily log or other suitable record of personnel, including subcontractors, working on Hanford Site.

## 1.6 WORK ON OR NEAR ELECTRICAL LINES OR UTILITY POLES

1.6.1 In addition to requirements of subsection 50.2 of the Contract General Conditions, whenever work is performed under, adjacent to, or on overhead electrical lines or utility poles, notify KEH at least 3 working days before work commences. Notification shall include names and qualifications of personnel performing work, and the methods and equipment that will be used. KEH will coordinate with the Site Utility Organization and notify the Contractor of special safety or operational requirements.

1.6.2 Some work will require that standby lineman be in attendance. Lineman will be furnished by KEH.

## 1.7 SAFETY REQUIREMENTS

### 1.7.1 Fire Safety

1.7.1.1 Address fire safety as part of construction safety plan required by Section 55 of the Contract General Conditions. Incorporate following requirements into plan.

a. Utilizing portable shields wherever welding, cutting, or grinding.

b. Maintaining fire watch minimum 1/2 hour after welding, cutting, or grinding is completed. Personnel maintaining watch shall be trained in operation of the fire extinguisher.

c. Having fully charged fire extinguisher available whenever welding, cutting, or grinding.

d. Method to prevent ignition of brush fires.

1.7.1.2 See Section 01500 for off-road driving and grass fire prevention requirements.

1.7.2 Safety Apparel: Personnel shall not be allowed in construction areas without approved safety apparel. Personnel are required to wear the following in construction areas, and KEH's shops and yards: steel-toed type shoes meeting the requirements of ANSI Z41; eye protection with eye shield devices meeting the requirements of ANSI Z87.1; hardhats, and clothing that prevents direct exposure to the construction environment. Steel-toed shoes shall be constructed of substantial material, preferably leather. Steel-toed shoes shall be in good condition; damaged footwear, impaired in the performance of its protective function, is not acceptable. Tennis shoes, canvas type shoes, or other athletic type shoes, including those with steel toe protection, are not acceptable. Tank-top type shirts, sleeveless shirts, dresses or other than full length pants are not allowed. Exceptions to these requirements, for specific work tasks, require advance KEH approval.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

FOR OFFICE USE ONLY

Name \_\_\_\_\_ Rel. No. \_\_\_\_\_ Work Order \_\_\_\_\_ / \_\_\_\_\_ Cost Account \_\_\_\_\_

ACCESS SUITABILITY INVESTIGATION - INFORMATION SHEET

Full Name: \_\_\_\_\_ Social Security No. \_\_\_\_\_

Other Names Used and Dates: \_\_\_\_\_

Date of Birth: \_\_\_\_\_ Place of Birth: \_\_\_\_\_

Current Employer: \_\_\_\_\_

Company Phone No.: ( \_\_\_\_\_ ) \_\_\_\_\_ Hire Date: \_\_\_\_\_

Previous Employer: \_\_\_\_\_

Hire and Termination Date: \_\_\_\_\_

Please list all addresses you have lived at for the past 3 years:

Address	City & State	Zip Code	From Mo/Yr	To Mo/Yr
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

SAMPLE

PERSONAL REFERENCES (do not use relatives) (use daytime numbers):

1. Name \_\_\_\_\_ Years Known \_\_\_\_\_

Address \_\_\_\_\_ Phone No. ( \_\_\_\_\_ ) \_\_\_\_\_

Occupation \_\_\_\_\_ Relationship \_\_\_\_\_

2. Name \_\_\_\_\_ Years Known \_\_\_\_\_

Address \_\_\_\_\_ Phone No. ( \_\_\_\_\_ ) \_\_\_\_\_

Occupation \_\_\_\_\_ Relationship \_\_\_\_\_

KEH 2146.00 (03/92)

FOR OFFICE USE ONLY

Name \_\_\_\_\_

Rel. No. \_\_\_\_\_

3. Name \_\_\_\_\_ Years Known \_\_\_\_\_  
Address \_\_\_\_\_ Phone No. \_\_\_\_\_  
Occupation \_\_\_\_\_ Relationship \_\_\_\_\_

4. Name \_\_\_\_\_ Years Known \_\_\_\_\_  
Address \_\_\_\_\_ Phone No. \_\_\_\_\_  
Occupation \_\_\_\_\_ Relationship \_\_\_\_\_

5. Name \_\_\_\_\_ Years Known \_\_\_\_\_  
Address \_\_\_\_\_ Phone No. \_\_\_\_\_  
Occupation \_\_\_\_\_ Relationship \_\_\_\_\_

SAMPLE

STATEMENT OF UNDERSTANDING AND RELEASE

I authorize Kaiser Engineers Hanford Company to investigate any statements made on this document and to investigate my background generally to determine security access suitability.

I do hereby certify that I do not advocate and am not a member of any political party or organization which advocates the overthrow of the constitutional government of the United States by force or seizure.

I hereby authorize any person, company, corporation, or credit bureau to give any pertinent information to Kaiser Engineers Hanford Company. I also authorize any city, county, state or federal law enforcement agency or court to release to Kaiser Engineers Hanford Company information they possess concerning any prior arrest which resulted in conviction. I hereby release each party including the Company, its agents and employees from all liability for any damage whatsoever incurred in furnishing such information.

Signature \_\_\_\_\_

Date \_\_\_\_\_

KEH 2148.DOR (03/92)

SECTION 01050  
FIELD ENGINEERING

PART 1 - GENERAL

1.1 REFERENCES: Not Used

1.2 SUBMITTALS: Not Used

1.3 QUALITY CONTROL

1.3.1 Establishing alignment, support location, and grades shall be the responsibility of a Land Surveyor registered in the State of Washington and acceptable to KEH.

1.3.2 Deliver field notes, records, and documentation to KEH to review and verify procedures used and accuracy of work.

1.4 SURVEY DATA

1.4.1 Basic reference points with coordinate descriptions and bench mark with elevation identified will be located on the Drawings.

1.4.2 Preserve bench marks and reference points, including stakes or other markers established until removal is authorized by KEH.

1.4.3 From information and dimensions shown on the Drawings, perform survey/layout required by the Work.

1.5 PROCEDURES

1.5.1 Before initial layout, field verify horizontal and vertical data. Report discrepancies to KEH before proceeding.

1.5.2 Establish adequate permanent reference points to be used during construction, referenced to original control points. Record locations with horizontal and vertical data on Project record documents.

1.5.3 Protect and preserve control and reference points until Work is complete. Report loss or destruction of control points to KEH. Report relocation or change in data affecting reference points.

1.5.4 Periodically verify data for control and reference points, and construction stakes to maintain construction accuracy.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01065

PERMITS

PART 1 - GENERAL

1.1 REFERENCES: Not Used

1.2 SUBMITTALS: Not Used

1.3 FEDERAL, STATE, AND MUNICIPAL LAWS, CODES, AND REGULATIONS

1.3.1 Required permits or licenses to do business are the Contractor's responsibility, as specified in Section 6 of the Contract General Conditions.

1.4 HANFORD SITE PERMITS

1.4.1 General: Before certain types of work can be done at Hanford, the Contractor is required to have a permit. Permits are provided by KEH at no cost. Notify KEH in advance of work requiring permits and furnish the information required. Meet the requirements and restrictions set forth in each permit. Keep permits posted in visible locations at sites of work being performed.

1.4.2 Excavation Permit: Do not excavate without the permit specified in subsection 50.10 of the Contract General Conditions. Permit is included with Contract Documents and is for duration of the Work.

1.4.2.1 Hand digging is required while excavating within 5 feet of known utilities. Health Physics Technician (HPT) survey of the site is required during excavation. Notify KEH 48 hours in advance to schedule HPT coverage.

1.4.3 Backfill Permit: Each element of fill and backfill requires a permit. Permits are good for 5 days, or duration of work element provided Work does not stop for 5 consecutive days. Complete permit form, furnished by KEH, and return to KEH for approval before starting work.

1.4.4 Hazardous Work Permit: Start no work without a permit. The permit will provide personnel protection requirements and restrictions for work involving welding and cutting, confined spaces, hazardous materials, or other hazardous working conditions. Permit is good for duration of Contract.

1.4.5 Solid Waste Disposal Permit: See Section 01500. This permit is required for disposal of nonhazardous waste on the Hanford Site. Obtain form from KEH, complete, and return to KEH for approval before moving waste to the disposal site.

1.4.6 Nonemergency Hydrant Tie-In Permit: Complete a permit for each hydrant tie-in. Obtain approval signatures on permits as directed by KEH. Approval to utilize hydrants will not be granted until checklist items have been verified by KEH. Permits will be furnished by KEH, and require 5 days notice before tie-ins.

1.4.7 Oversize Load Permit: In addition to Washington State permit, obtain permits for each movement of each oversize vehicle or load within the Hanford Site. Permits will be furnished by KEH with 48 hour notice of width, height, and length of oversized load and proposed route of travel. Verify proposed route has been traveled and limitations have been identified. See Section 01500 for additional requirements.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01100

SPECIAL PROJECT PROCEDURES

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 The following documents, including others referenced therein, form part of this Section to the extent designated herein.

1.1.1.1 Code of Federal Regulations (CFR)

Title 29	Labor
Part 1910	Occupational Safety and Health Standards

1.1.1.2 Federal Standards (FED STD)

FED-STD-313C	Material Safety Data, Transportation Data, And Disposal Data For Hazardous Materials Furnished To Government Activities
--------------	---

1.1.1.3 Washington Administrative Code (WAC)

Title 173	Department of Ecology
Chapter 173-303	Dangerous Waste Regulations

1.2 SUBMITTALS

1.2.1 See Section 01300 for submittal procedures.

1.2.2 Approval Required

1.2.2.1 Waste Minimization Plan: Five days before starting work, submit the plan required in 1.4.4.

1.2.2.2 Control of Hazardous Energy: Five days before starting work, submit lockout/tagout procedures and training certifications for employees.

1.2.2.3 Contingency Plan: Five days before starting work, submit the contingency plan and emergency procedures required in WAC 173-303-350.

1.2.2.4 Hazardous Material Storage: Five days before delivery, submit a proposed method for storage of hazardous materials.

1.2.3 Approval Not Required

1.2.3.1 Hazardous Waste: Five days before starting work, submit physical descriptions and quantities of waste and waste containers to be generated.

1.2.3.2 Waste Handlers: Five days before starting work, submit a list of personnel who will handle waste.

1.2.3.3 Recycling: Five days before starting work, submit a list of waste that will be recycled, including names of recycling firms.

1.2.3.4 Hazardous Materials: Five days before delivery, submit a list of hazardous materials to be used. Include their current Material Safety Data Sheets.

1.2.3.5 Recycling Records: At contract completion, submit records of amounts, methods, and types, of waste recycled.

### 1.3 HAZARDOUS MATERIAL REQUIREMENTS

1.3.1 Hazardous products, defined in Section 111 of the Contract General Conditions, whether specified, recommended, or voluntarily requisitioned by Contractor, shall be governed by requirements of FED-STD-313 and Section 111 of the Contract General Conditions.

### 1.4 DANGEROUS WASTE HANDLING REQUIREMENTS

1.4.1 Dangerous waste, defined in WAC 173-303, generated by the Contractor at the worksite shall be turned over to KEH for disposal.

1.4.1.1 Prior to generating waste, the Contractor shall establish an acceptable satellite accumulation area at the worksite. Drums for waste disposal will be furnished by KEH. Drums shall be labeled "Hazardous Waste," with a drum tracking number furnished by KEH, and with the appropriate physical and chemical hazards. The Contractor shall keep an inventory, on logsheets furnished by KEH, of amounts and types of waste deposited in the drums.

1.4.1.2 The Contractor shall designate personnel who will be responsible for managing the satellite accumulation area in accordance with training given by KEH. Provide a phone number for contacting the responsible personnel.

1.4.1.3 Include required records (labels, inventory, tracking numbers) with each drum as it is turned over to KEH. Failure to provide records of drum contents will result in a \$2,500 charge to the Contractor.

1.4.2 The Contractor's superintendent, and designated personnel who handle, transfer, accumulate, or otherwise work with dangerous waste shall be trained by KEH (4 hours for each person) and adhere to the requirements of WAC 173-303-330. Other waste management requirements, covered in the KEH training, that shall be followed include the following.

1.4.2.1 Select compatible waste containers. Container integrity is, in part, dependent upon waste physical and chemical properties.

1.4.2.2 Contractor personnel shall call the KEH Hazardous Waste Coordinator (HWC) to receive container numbers which will be permanently marked on containers for tracking purposes.

1.4.2.3 Contractor personnel shall contact KEH HWC for specific instructions on completing Hazardous Waste labels and markings, and attaching them to containers.

1.4.2.4 Weekly inspections of the satellite accumulation area, by the Contractor's trained waste handler, are required. A report of the inspection on Form KEH-2035 (sample included) shall be forwarded to KEH within 3 working days after the inspection. Forms will be provided by KEH.

1.4.2.5 As waste is accumulated in a container, a Waste Container Log, Form KEH-0844 (sample included) shall be filled out. Forms will be provided by KEH.

1.4.2.6 A full container date shall be recorded when accumulated waste reaches 55 gallons for solids, and 50 gallons for liquids. The container shall be sealed at that time. The Contractor shall notify KEH by forwarding the waste container log within 4 hours after a waste container is full.

1.4.3 Report dangerous waste or hazardous material spills to KEH immediately. KEH will provide drums and direction for disposal. The Contractor shall provide labor and equipment for cleaning up spills, and transporting drums to a location designated by KEH. The Contractor shall also provide a written inventory of drum contents. Waste will be disposed of by KEH at no charge for properly reported spills. For unreported spills, the Contractor will be charged \$1,000 for each drum.

1.4.4 Prepare a plan indicating how dangerous waste generated at the worksite will be minimized during construction, in accordance with WAC 173-303. Other waste minimization requirements that shall be included are the following.

1.4.4.1 Material substitution: Replacement of hazardous materials with nonhazardous or less hazardous materials.

1.4.4.2 Inventory reduction: Minimization of chemical inventory on hand, which in turn reduces the undue accumulation of partially used or unused materials requiring disposal upon expiration.

1.4.4.3 Procurement modifications: Minimization of the variety of chemicals used to perform the same or similar processes, and incorporation into procurement specifications of provisions for the return of unused chemical stock and empty, unrinsed containers.

1.4.4.4 Waste segregation: Separation of hazardous and nonhazardous materials to avoid creating additional hazardous waste, and to avoid creating mixtures for which recycling may not be practical.

1.4.4.5 Recycling: Extension of the useful life of materials to delay final disposition as waste, or reuse of materials designated as waste.

1.4.4.6 Process modification: Streamlining of processes for more efficient operation and less waste generation.

1.4.4.7 Reuse: Reusing materials such as plastic drop cloths, application tools, and rags as much as possible to reduce the volume of waste generated.

1.4.5 Inspections: Provision for KEH inspections of the Contractor's waste management practices and waste minimization efforts.

#### 1.5 CONTROL OF HAZARDOUS ENERGY

1.5.1 Conform to lockout/tagout requirements of 29 CFR 1910.147.

1.5.1.1 Employees shall be trained to the KEH sitewide lockout/tagout procedure. Lockout/tagout training is available through KEH at various times throughout the month and runs approximately 4 hours.

1.5.2 Establish an energy procedure and training plan with provisions for the following.

1.5.2.1 Isolation or inactivation of hazardous energy sources before performing work thereon. A hazardous energy source is defined as a machine or equipment item with the potential for causing injury by unexpected energizing, startup, or stored energy release.

1.5.2.2 Certification of the accomplishment and currency of appropriate training. Certification shall include employee's names and training completion dates.

1.5.3 Coordinate lockout/tagout operations with KEH.

#### 1.6 SPECIAL EXCAVATION REQUIREMENTS

1.6.1 No excavation shall be performed without a Radiation Protection Technician (RPT) present. During periods of scheduled excavation, the contractor shall allow for delays of one (1) hour per day (cumulative during each day) for the RPTs to survey the undisturbed soil during excavation, survey recently excavated material, and for times when an RPT is not present. Notify KEH a minimum of one (1) workday in advance of any scheduled excavation.

1.6.2 Notify KEH promptly if radioactive contamination is encountered in other than established radiation zones.

#### 1.7 WEATHER DELAY CONSIDERATIONS

1.7.1 The Contractor shall take whatever action determined by Contractor to be necessary to ensure that delays in completing the Work are not attributable to or a consequence of any weather condition that may occur during the Contract Performance Period. To this end, it is recommended that the Contractor be prepared to furnish whatever protection Contractor deems appropriate and to take other action as required to permit Work to proceed during periods of inclement, severe, or otherwise unusual weather. Furthermore, should the Contractor decide to slow or quit prosecution of

Work due to inclement, severe, or otherwise unusual weather which might occur during the Contract Performance Period, then the Contractor shall not be entitled to any adjustment in Contract Duration as a result of weather conditions giving rise to that decision.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used





SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL

1.1 REFERENCES: Not Used

1.2 SUBMITTALS: Not Used

1.3 PROCEDURES

1.3.1 Representatives from KEH, Contractor, and major subcontractors shall participate in project meetings. Representatives from Operating Contractor and DOE may attend as required by items to be discussed.

1.3.2 Meeting times and locations shall be mutually agreed to by Contractor and KEH and will be held at the Hanford Site 200 East Area. KEH will issue notices of meetings and prepare meeting minutes which will be distributed to project participants.

1.4 SITE LABOR CONFERENCE

1.4.1 Before starting construction onsite, conduct informational conference on Hanford Site labor requirements applicable to Project. KEH will provide meeting notice to representatives from labor organizations, identified by Contractor, whose members may be utilized in construction and are to attend conference. Contractor shall present proposed work plan and craft utilization, and review Contract General Conditions relating to labor.

1.5 PRECONSTRUCTION

1.5.1 Meeting will be scheduled by KEH before start of onsite work. Authorized representatives of Contractor and major subcontractors shall attend and KEH will advise others having interest in Work. Meeting will be chaired by KEH.

1.5.2 Following items, as minimum, will be incorporated into agenda for meeting.

1.5.2.1 Point of contact and key personnel representing Operating Contractor, Safety, Quality Engineering/Quality Control (QE/QC), Acceptance Inspectors, and Construction Engineers.

1.5.2.2 Schedule requirements and restraints, submittals and work limitations.

1.5.2.3 Safety, construction progress meetings and frequency, and certified payrolls.

1.5.2.4 Report requirements and frequency.

1.5.2.5 Quality requirements.

1.5.2.6 Major material and equipment lists.

1.5.2.7 Other pertinent items.

1.6 CONSTRUCTION PROGRESS

1.6.1 Meetings held biweekly at time and location determined at preconstruction meeting will be approximately one hour long.

1.6.2 KEH will chair meeting and request attendance of key personnel required. Authorized representatives of Contractor and pertinent subcontractors shall attend.

1.6.3 Purpose of meetings is to monitor status and provide forum for exchange of pertinent information related to the Work. Major topics may include, but not be limited to, following.

1.6.3.1 Schedule, cost, and construction status.

1.6.3.2 Design and scope changes.

1.6.3.3 Submittal status, key material, and equipment delivery status.

1.6.3.4 Potential problem areas.

1.6.3.5 Inspection and testing status.

1.6.3.6 Action item status, goals for next meeting.

1.6.3.7 Safety.

1.6.3.8 Other appropriate items.

1.6.4 Meeting minutes will be issued by KEH as promptly as possible following meeting. Action items will be identified with assigned follow-up. Issues resolved will be reported in minutes, as well as closed action items.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.1 SUBMITTAL CONDITIONS

1.1.1 Materials and equipment fabricated or installed without required approved submittals, or which differ from approved Drawings or vendor data, are subject to rejection and replacement at the Contractor's expense.

1.1.2 Delays arising from failure to submit required Drawings and other related data described in Contract Documents, in a timely manner, will not constitute excusable delays for extensions, unless excusable under other provisions of the Contract.

1.2 SUBMITTALS REQUIRED

1.2.1 Required submittals are defined in Part 1, Article 1.2 of the specification sections.

1.2.2 Submittals are divided into two types; those requiring approval, and those not requiring approval. Included in the former are submittals of architectural material samples, where KEH reserves the right to make final selections.

1.2.3 Send submittals to KEH no later than the times indicated. Those requiring KEH approval must be approved before further submittal related procurement, fabrication, or construction is accomplished. This also applies for KEH selections made from samples submitted.

1.2.4 Submittals required are summarized in the master submittal log behind miscellaneous table of contract documents. Each submittal is identified by General Conditions and Specifications Section/Paragraph Number and Title. Submittals required for "Review and Approval" are identified in the "TYPE" column with an "A," and those required for "Review for Record" are identified with an "IR."

1.2.5 Approval Required

1.2.5.1 Safety program and job safety analysis: Before badging of Contractor personnel, submit Safety Program and Job Safety Analysis/as required by Section 55, Paragraph 55.2 of Contract General Conditions.

1.2.6 Approval Not Required

1.2.6.1 Certificates of first aid training (WISHA requirements): Before badging of Contractor personnel, submit Certificates of First Aid Training as required by Section 55, Paragraph 55.1 of Contract General Conditions.

1.2.6.2 Industrial injury/illness experience: Before badging of Contractor personnel, submit Industrial Injury/Illness Experience as required by Section 55, Paragraph 55.3 of Contract General Conditions.

1.2.6.3 OSHA Form 200 report: The 5th working day of each month, submit OSHA Form 200 Report as required by Section 55, Paragraph 55.5.1 of Contract General Conditions.

1.2.6.4 Equipment certification: Before badging of Contractor personnel, submit Equipment Certification as required by Section 55, Paragraph 55.6 of Contract General Conditions.

### 1.3 SUBMITTAL REVIEWS

1.3.1 Submittals requiring approval will be reviewed to verify completeness and conformance to requirements. Appropriate dispositions will be made in accordance with 1.4 below.

1.3.2 Allow 21 calendar days for KEH review and disposition of submittals. This time period will be measured from date of submittal receipt in KEH's office to date of return mailing.

1.3.3 Submittals not requiring approval will be reviewed to verify completeness and adequacy for their intended purposes. If acceptable, these items are filed, and finally delivered to the Operating Contractor. Unacceptable items will be handled in accordance with 1.4.5.

1.3.4 If a submittal not requiring approval has not been returned within the time period specified in 1.3.2, and KEH has not informed the Contractor that additional review time is necessary, the Contractor may consider it accepted by KEH.

### 1.4 SUBMITTAL PROCEDURE

1.4.1 Transmit submittals using form KEH-1838, Data Transmittal/Review, sample included.

1.4.2 Identify each submittal by Section/Paragraph Number, Submittal Number, and Submittal Title as noted in Master Submittal Log. The number of copies required includes 2 copies for return to the Contractor. If necessary, provide additional copies required for return to the Contractor.

1.4.2.1 Approval Data (for products): Mark each line item package with the specification section and paragraph numbers specifying the product.

1.4.2.2 Vendor Information (for products): Mark each line item package with the specification section and paragraph numbers specifying the product, and the item name, manufacturer's name, model or part number, and KEH tag number (if specified).

1.4.2.3 Items that require approval: Submit 4 copies, including one reproducible.

1.4.2.4 Samples for selections: Submit as required by the Sections of this Specification.

1.4.2.5 Items that do not require approval: Submit 4 copies.

1.4.3 Review each submittal for completeness, compliance with Contract Documents, and proper identification before sending to KEH. Submittal data shall either be stamped, showing the review process has taken place, or the Data Transmittal form may be stamped "Reviewed for Compliance," and signed. Submittals not stamped or signed will be returned without consideration.

1.4.4 Submittals requiring approval will be stamped by KEH, and marked "Approved," "Approved with Exception" or "Not Approved, Revise and Resubmit." Approval of submittals does not relieve the Contractor of responsibility for errors contained therein.

1.4.4.1 Approved submittals are identified by the submittal stamp, with either the "Approved" or "Approved with Exception" box checked. "Approved" signifies general concurrence of submittal conformance with Project design concepts and compliance with Contract Document requirements. "Approved with Exception" signifies general concurrence, with noteworthy comments or clarifications. Approval of a specific item shall not be construed as approval of the system or assembly of which that item is a component.

1.4.4.2 A submittal which is not approved is identified as "Not Approved, Revise and Resubmit." The submittal is considered technically deficient, or incomplete, and therefore unacceptable. Resubmittal is required, hence fabrication, procurement, or performance of procedures shall not proceed.

1.4.4.3 Upon receipt of deficient submittal data, make corrections noted on the transmittal, and resubmit data to KEH.

1.4.5 Submittals not requiring approval that are found to be incomplete or inadequate will be returned marked "Resubmit." An explanation of the deficiencies will be included, for corrective action by the Contractor. Resubmit in accordance with 1.4.4.3.

1.4.6 Procedures for performing certain types of work must be submitted for approval before work is commenced. Such procedures which have previously been approved by KEH, for work similar to that to be accomplished on this Project, may not need to be reapproved. Forward 1 copy of previously approved procedures to KEH, by Data Transmittal form, and identify each by Section/Paragraph Number, Title, and either procedure number or project number for which the procedure was approved. Submittals will be reviewed by KEH and, if acceptable, retained for record. If a previously approved procedure is not acceptable, the submittal will be returned, with requirements for resubmittal.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used



<b>KAISER ENGINEERS HANFORD</b>		<b>DATA TRANSMITTAL/REVIEW</b>			Submitter No. _____
Project Title _____					Sheet _____ of _____
PO No.	Project No.	WO No.	Bldg. No.	Date	
Subcontract No.		Subcontractor or Supplier			
<p>Comments:</p> <div style="text-align: center; font-size: 48px; opacity: 0.5; transform: rotate(-15deg); font-weight: bold;">SAMPLE</div>					

KEH-1838.02 (10/91)

END OF SECTION

01300 - 5

C-018H-C7  
Rev 0

SECTION 01310  
PROGRESS SCHEDULES

PART 1 - GENERAL

1.1 REFERENCES: Not Used

1.2 SUBMITTALS

1.2.1 See Section 01300 for submittal procedures.

1.2.2 Approval Required

1.2.2.1 Progress schedule: 10 days after notice of award, submit the schedule required in Article 1.3.

1.2.3 Approval Not Required: None

1.3 PROGRESS SCHEDULES

1.3.1 Schedules identified in Section 5 of the Contract General Conditions shall be in accordance with following.

1.3.1.1 Show order Contractor proposes to carry on the Work, starting dates of the several salient features of the Work including procurement of materials and equipment, and contemplated dates for completion. Each schedule shall be in form of bar chart of suitable scale to show percentage of Work scheduled for completion at any time with separate bar for each activity. At end of each week or at end of other periods of time specified in Contract, prepare and submit one copy of chart showing actual progress at end of period.

1.3.2 Organize schedule to show activities relative to each major subcontractor and supplier. Provide subschedule to define critical portions of entire schedule.

1.3.3 Schedule shall include construction activities, progress milestones, and include, but not be limited to, following activities.

1.3.3.1 Bond and insurance.

1.3.3.2 Submittal schedule.

1.3.3.3 Mobilization.

1.3.3.4 Survey.

1.3.3.5 Clearing.

1.3.3.6 Earthwork.

1.3.3.7 Install piping.

1.3.3.8 Tie-in to existing systems.

1.3.3.9 Perform start-up.

1.3.3.10 Deliver record documents.

1.3.3.11 Contract closeout.

1.3.3.12 Demobilize.

1.3.4 Schedule shall show, as minimum, accumulated percentage of completion of each activity and total percentage of work completed as of last work day of each month.

1.3.4.1 Develop an "S" curve from percentage of total work figures and superimpose on schedule.

1.3.4.2 Show dollar value or percentage of total next to each activity shown on schedule. Figures will be basis for determining progress payments described in Section 01027.

#### 1.4 WEEKLY WORK SCHEDULE

1.4.1 Prepare initial and subsequent detailed schedules of the next two week's work. Deliver to KEH at the weekly meeting. Schedule shall include following as minimum.

1.4.1.1 Work description.

1.4.1.2 Location of work.

1.4.1.3 Work involving outages, overtime, weekends, and inspections.

#### 1.5 REVISIONS TO SCHEDULES

1.5.1 Whenever KEH determines there are significant variances between actual and scheduled progress, endangering completion within Contract completion time, Contractor may be required to prepare and submit revised schedules.

1.5.2 Show progress to date of submittal and projected completion date of each activity. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.

1.5.3 Provide narrative report to define problem areas, anticipated delays, and impact on schedule. Report corrective action taken, or proposed, and its effect, including changes on schedules of separate contractors.

1.5.4 Distribute copies of revised schedules to KEH Project file, subcontractors, suppliers, and other concerned entities. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in revised schedules.

1.5.5 If Contractor fails to submit progress schedule specified in Paragraph 1.3.1 within prescribed time, or revised schedules specified in Paragraph 1.5.1, within requested time, KEH may withhold approval of progress payments until time Contractor submits required schedules.

1.6 UPDATED SCHEDULES

1.6.1 Submit with each monthly progress payment request an updated schedule showing actual progress vs planned progress covering work through the end of the month.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01400  
QUALITY ASSURANCE

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 The following document, forms part of this Section to the extent designated herein.

1.1.1.1 Kaiser Engineers Hanford (KEH)

GG-DETE-01

Detection and Exclusion of  
Misrepresented Products

1.2 SUBMITTALS

1.2.1 See Section 01300 for submittal procedures.

1.2.2 Approval Required

1.2.2.1 Quality Assurance/Quality Control System: Submit quality assurance/control procedures meeting the requirements of Section 14 of the Contract General Conditions, and specific Contractor procedures contained herein.

1.3 CONTRACTOR QUALITY REQUIREMENTS

1.3.1 Requirements apply to the following Contract work elements.

1.3.1.1 All onsite contract activities

1.3.2 Provide documented quality procedure which satisfies the following criteria. If the contractor has an existing documented program or existing procedures, furnish a matrix which cross-references the submitted data with corresponding requirements listed.

1.3.2.1 Document control: Provide procedures to ensure that the latest approved issues of Contract Documents and applicable contractor submittals and procedures are used for procurement, manufacturing, fabrication, assembly/installation, inspection, and testing.

1.3.2.2 Identification and control of items:

a. Controls shall include provisions for detection and exclusion of misrepresented products. As a minimum, these controls shall include the applicable requirements of Article 1.4.

1.3.2.4 Inspection and Testing:

a. Perform inspections and tests specifically required by Contract Documents, and sufficient additional inspections to ensure compliance with Contract requirements.

b. Inspection and test requirements shall be described by clear, complete, and current procedures and instructions. Test procedures shall include test objectives and provisions for ensuring that prerequisites for inspections and tests have been met.

c. Document and review inspections and testing for compliance with requirements. Documented inspections and tests shall report the true physical/functional condition of activity, provide sufficient detail to describe inspections and testing performed, applicable Contract requirements referenced, and the results and determinations of inspections and tests shown. Records shall be legible, accurate, complete, and protected against damage, deterioration, or loss. Documentation of inspections and tests shall be delivered as required by Contract requirements.

d. Complete required inspections and tests, and have documentation available for review, before requesting overview inspection by KEH.

#### 1.3.2.5 Control of measurement and test equipment (M&TE)

a. Testing shall be performed using calibrated equipment when required by the contract documents. Equipment shall be calibrated at established intervals to ensure continued accuracy. Calibrations shall use certified measurement standards which have known, valid relationships to national standards.

b. Maintain records and mark equipment to show calibration status.

c. Notify KEH when M&TE is found to be out of calibration after being used on KEH procurments.

1.3.2.6 Handling, storing, and shipping: Handling, storing, cleaning, preserving, packing, and shipping of piping components shall be controlled to prevent damage and loss, and to minimize deterioration.

#### 1.3.2.7 Inspection, test, status:

a. Maintain a positive system for identifying inspection and testing status.

b. Document the status of ongoing fabrication, installation, inspection, and testing, and make available to KEH for review.

#### 1.3.2.8 Control of nonconforming items:

a. Provide a method of notification for all construction items and activities which do not conform to requirements. Notification and documentation shall be given to the KEH Field Construction Engineer.

1.3.3 KEH may review/audit Contractor compliance approved quality procedures and Contract Documents.

#### 1.4 EXCLUDING MISREPRESENTED PRODUCTS

1.4.1 Take measures to prevent incorporation of misrepresented products (ie, suspect/counterfeit) products into the work. Forms of misrepresentation the Contractor may encounter include:

1.4.1.1 Falsified product sources (counterfeits).

1.4.1.2 Falsified (modified or counterfeit) quality assurance records.

1.4.1.3 False marking as to Class, Type, or Grade.

1.4.1.4 False labeling as to qualification or acceptance by testing/certifying organizations.

1.4.1.5 Used products misrepresented as new products.

#### 1.4.2 Methods to Detect and Exclude Misrepresented Products

1.4.2.1 Obtain products from original manufacturers, their authorized distributors, or other established and reliable sources only.

1.4.2.2 During the initial stages of procurement, the Contractor should be suspicious of quoted prices significantly lower, or delivery times significantly shorter, than those of other competitors. Such quotations may be an indication that misrepresented products are being offered.

1.4.2.3 Products received should be in boxes or containers bearing original manufacturers labels, except for bulk or lot materials that are repackaged for shipment in quantities ordered.

1.4.2.4 Screen procured products and products in stock using screening information provided in KEH GG-DETE-01. Screening activities should, at a minimum, include the following.

a. Identify the source of the products (manufacturer, authorized distributor, or other reliable source).

b. False marking as to class, type or grade. See KEH GG-DETE-01, Paragraph 4.4.

c. False labeling indicating qualification or approval by nationally recognized agencies (eg. UL Listed). See KEH GG-DETE-01, Paragraph 6.3.

d. Products being represented as new. See KEH-GG-DETE-01, Paragraph 3.2.

e. Falsified quality affecting documentation (eg, Certified Material Test Reports) being used as the basis for product acceptance. See KEH-DETE-01, Paragraph 4.3.

1.4.3 Documentation

1.4.3.1 Invoices and shipping documentation should be addressed to the contractor and should indicate that products were procured from the original manufacturer, authorized distributors, or other established/reliable sources.

1.4.4 Products identified in GG-DETE-01, Attachment A, are considered unacceptable and shall not be used in Contract work.

1.4.5. Upon detection of suspect products, provide notification and document deficiency to KEH in accordance with Section 2.0 of KEH-G-DETE-01.

1.5 INSPECTING AND TESTING

1.5.1 In accordance with Section 19 of the Contract General Conditions, perform the following.

1.5.1.1 Hydrostatic testing

1.5.2 In accordance with Section 19 of the Contract General Conditions, KEH will perform the following.

1.5.2.1 Sampling and testing of compacted structural fill and backfill

1.5.2.2 Testing of hot-laid asphaltic concrete paving.

1.5.2.3 Witness specific inspection and witness points.

1.5.2.4 Perform final acceptance inspection.

1.5.3 Specific Inspection Points: Adhere to inspection points. Ensure that personnel have completed inspections of, and approved portions of work in accordance with Contract requirements before notifying KEH.

1.5.3.1 Specific inspection points are defined as follows.

a. Construction inspection (H): Required for witnessing of specific construction features, before further construction is allowed to proceed.

b. Witness (W): Selected for inspection at the option of KEH. Work may proceed upon verbal release by KEH or upon expiration of one hour beyond scheduled time of witnessing.

1.5.3.2 H, and W points apply to onsite work as indicated. Except where a longer period is specified, notify KEH at least four working hours before each point for onsite work.

1.5.3.3 H, and W points are listed in Article 1.7

1.6 OPEN ITEM AND NONCONFORMANCE REPORTING

1.6.1 KEH utilizes Open Item Reports to document deviations from Contract requirements.

1.6.1.1 Open Item Reporting: Open items are documented on the Open Item Reports available from KEH. Open items are identified by white open item tags. Items shall be corrected by the Contractor without additional direction. Correction shall bring item into compliance with Contract requirements, using approved rework procedures or standards, without violating Contract requirements.

1.6.2 The Contractor shall ensure its organization is represented by individuals with sufficient authority to commit the Contractor to corrective action requirements identified by KEH.

1.6.3 Open items reported during performance of the Contract require resolution before completion and final payment.

1.7 SCHEDULE FOR H, R, AND W POINTS

Section Number	Subject	Type	Offsite	Onsite
02225 Excavating, Backfilling, and Compacting for Utilities				
1	Compaction Procedure Demonstration	H		X
2	Structural Backfill	W		X
02235 Road Subgrade and Granular Base				
1	Compaction Procedure Demonstration	H		X
2	Installation of Base and Top Course	W		X
02450 Railroad Work				
1	Compaction Procedure Demonstration	H		X
02512 Hot Laid Asphaltic Concrete Paving				
1	Initial Placement of Asphaltic Concrete Paving	H		X
02650 Piped Utilities				
1	Initial Installation of Piping	H		X
2	Leak Pressure Testing	H		X

Section Number	Subject	Type	Offsite	Onsite
02741 Disposal Field				
1	Initial Installation of Piping	H		X
2	Initial Installation of Drain Rock	W		X
3	Initial Placement of Geotextile	W		X
4	Backfill of Drain Pipe	W		X

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 The following documents, including others referenced therein, form part of this Section to the extent designated herein.

1.1.1.1 National Fire Protection Association (NFPA)

701 (1989) Methods of Fire Tests for  
Flame-Resistant Textiles and  
Films

1.1.1.2 Washington State Department of Transportation (WSDOT)

M41-10-91 Road, Bridge, and Municipal  
Construction

1.2 SUBMITTALS: Not Used

1.3 CONSTRUCTION FACILITIES

1.3.1 First Aid: Facilities are available at Building 2719EA in the 200-East Area and at Building 2719WA in the 200-West Area. In emergency, call 911 if using Contractor-owned cellular phone. Dial 811 if using a WHC- or KEH-owned cellular phone. If using 2-way radio to contact an office, that office must dial 911. Emergencies can also be reported immediately to 373-2301 or 373-3800.

1.3.2 Operation and Storage Areas: Confine worksite operations, including storage of materials, to areas designated by KEH.

1.3.3 Waste Disposal

1.3.3.1 Radiation survey release: Waste generated during construction, including excess excavation, shall be surveyed by onsite technicians for radiation contamination, and formally released prior to transport off the project site. Telephone 373-3298 or 373-3031 to schedule a technician. Allow 4 hours for completion of the survey.

1.3.3.2 Disposal site: Dispose of construction debris at the Hanford Site Central Landfill, approximately 15 road miles from the project. A Solid Waste Disposal Request shall be completed by the Contractor, and signed by the Radiation Technician prior to taking waste to the site. Forms are available from KEH. The site is open between 8:30 a.m. and 2:30 p.m.

1.3.3.3 Dangerous waste: See Section 01100.

#### 1.4 TEMPORARY UTILITIES

##### 1.4.1 Water

1.4.1.1 Construction: No water is available in the immediate vicinity of the project. A water spout for water trucks is available approximately 2.5 miles south of the Project.

1.4.1.2 Drinking: Furnish adequate drinking water, that meets health and safety requirements, to employees.

1.4.2 Electric Power: No electrical power is available in the vicinity of the Project. Contractor shall provide portable generators if required.

1.4.3 Telephone: Contractor shall provide cellular phone service in job trailer. Cellular phone shall be available for KEH use for local calls. Contractor shall be responsible for all telephone costs.

1.4.4 Sanitary Facilities: Furnish and service chemical or other approved sanitary toilets for employee use. Facilities shall meet requirements of KEH which are available upon request.

#### 1.5 ACCESS ROADS AND PARKING AREAS

1.5.1 Grass Fire Prevention: To reduce potential for grass fires, minimize off-road driving. Vehicles driving off-road or to remote locations, shall carry a minimum 10 pound ABC dry chemical portable fire extinguisher, communications equipment consisting of 2-way radio or mobile phone (CB type radios are not acceptable), and shovel. In emergency, call 911 if using Contractor-owned cellular phone. Dial 811 if using a WHC- or KEH-owned cellular phone. If using 2-way radio to contact an office, that office must dial 911. Emergencies can also be reported immediately to 373-2301 or 373-3800. All fire must be reported.

#### 1.6 TEMPORARY CONTROLS

1.6.1 Dust Control: Maintain work areas to prevent hazard or nuisance to others. Accomplish dust control by sprinkling or other methods approved by KEH. Repeat sprinkling at necessary intervals to keep disturbed area damp at all times. Keep sufficient equipment on Project to accomplish dust control as work proceeds and whenever dust nuisance or hazard occurs. No separate or direct payment will be made for dust control and cost shall be considered incidental to and included in Contract price.

1.6.2 Temporary Enclosures: Plastic sheeting materials used to form enclosures shall be minimum 6 mils thick and have fire retardant properties meeting the requirements of NFPA 701. Acceptable manufacturers are Winman Corp (Plastic Division), St. Cloud, Minnesota; Lancs Industries, Kirkland, Washington; and Protective Plastics, Inc, Greer, South Carolina.

1.6.3 Traffic Control: Temporary traffic control and barricades in accordance with WSDOT M41-10, Section 1-07.23(3).

1.6.3.1 Vehicle and equipment movement:

a. Slow moving vehicles and equipment shall not travel on Hanford Site roads during heavy traffic periods between 6:30 and 8:00 am, and 3:30 and 5:30 pm.

b. Do not block existing roads.

c. Do not park on roadway shoulders.

1.6.3.2 Oversized vehicles and loads:

a. Permits specified in Section 01065 are required for vehicles or loads exceeding following dimensions.

1) Width: 8'-6".

2) Height: 14 feet.

3) Length: Single unit, 40 feet.  
Single trailing unit, 48 feet.

b. Additional requirements for vehicles and loads exceeding 8'-6" width.

1) Display oversize load sign on front of towing vehicle and rear of trailing unit.

2) Attach red flags to each corner.

3) Notify KEH 5 days before moving loads.

4) Travel between 9:00 am and 2:30 pm unless special arrangements are made.

c. Escort vehicle requirements.

1) Equip with oversize load signs and amber lights.

2) Vehicles or loads over 10 feet wide: Provide escort cars in front and rear on 2 lane highways.

3) Vehicles or loads over 14 feet wide: Provide escort car in rear on multiple lane highways.

4) Vehicles or loads over 20 feet wide: Provide escort cars in front and rear on multiple lane highways.

d. Electrical escort requirements: KEH will provide qualified electrical escorts, at no cost to Contractor, when load reaches height of 14 feet or more from road surface, or when clearance of at least 6 feet cannot be maintained from overhead electrical or signal lines. Notify KEH at least 3 working days before escort is required.

1.7 FIELD OFFICE

1.7.1 A field office is required. Keep copies of Drawings, Specifications, and other information pertinent to the Work at field office. KEH shall have access to documents at all times. Should Contractor elect to utilize portable or relocatable structures, requirements of 1.7.2 shall apply.

1.7.2 Anchor or tie down portable or relocatable structures, including trailers for field offices and storage, to prevent overturning or lateral movement in winds up to 70 mph. Enclose or skirt underfloor area with material that will not burn or support combustion to prevent accumulation of wind-blown debris and use of underfloor space for material storage. Complete anchoring and enclosing within 14 days after arrival at the worksite.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01630

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 - GENERAL

1.1 REFERENCES: Not Used

1.2 SUBMITTALS

1.2.1 See Section 01300 for submittal procedures.

1.2.2 Approval Required

1.2.2.1 Substitution Approval Request(s): Before start of construction, submit request(s) as required by 1.3.4 and 1.3.5, prepared in accordance with 1.5.

1.2.3 Approval Not Required: None

1.3 SUBSTITUTIONS

1.3.1 Products include those items identified on the Drawings as well as in Part 2 of the Specification Sections.

1.3.2 Product options given in the Specification Sections represent functionally and physically equivalent items. In addition to generic type, materials, form and size, physical equivalence includes maintainability, reliability, and durability characteristics, as applicable for specific material or equipment items.

1.3.3 A substitute product may be used in place of a product or the product options identified in Specification Sections, without approval, if it is functionally and physically equivalent as defined above.

1.3.4 Substitution of a product that is functionally but not physically equivalent, as defined above, requires submittal of a Substitution Approval Request.

1.3.5 Submittal of a Substitution Approval Request is also required when a product callout in the Specification Sections includes the phrase "or an approved substitute."

1.3.6 Total quantities of products required in specification sections shall be the same. Differences due to partial quantity substitutions are not acceptable.

1.3.7 Do not use materials and equipment removed from existing structure as substitutes for specified products, unless such use is required or allowed elsewhere in the Contract Documents.

#### 1.4 LIMITATIONS ON SUBSTITUTIONS

1.4.1 Substitutions will not be considered when indicated or implied on fabricator drawings, or product data submittals, without separate Substitution Approval Requests, when requested directly by subcontractors or suppliers, or when acceptance will require substantial revision of Contract Documents.

1.4.2 Substitute products that require a substitution approval request shall not be ordered or installed before the request is approved.

1.4.3 Only one Substitution Approval Request for each product will be considered. When a substitution is not accepted, provide specified product.

1.4.4 KEH will determine acceptability of substitution approval requests.

#### 1.5 REQUESTS FOR SUBSTITUTIONS

1.5.1 Submit a separate Substitution Approval Request for each substitution, using Form KEH-1151, sample included.

1.5.2 Identify products by Specification Section and Article or Paragraph numbers. Provide manufacturer's name and address, trade name of product, and model or catalog number. List fabricators and suppliers as appropriate.

1.5.3 To each Substitution Approval Request attach descriptive information for substitute and original products. The information shall consist of drawings, calculations, and data as appropriate to define operational and physical characteristics of products, and establish a basis for comparison.

1.5.4 Give an itemized comparison of proposed substitution with specified product, listing variations, with reference to Specification Section and Article or Paragraph numbers.

1.5.5 Give quality and performance comparisons between proposed substitution and specified product.

1.5.6 Give cost data comparing proposed substitution with specified product, showing the Contract Sum net change.

1.5.7 List availability of maintenance services and replacement materials.

1.5.8 State effect of the substitution on construction schedule, and changes required in other work or products. If a substitute product requires or necessitates revisions to structures, foundations, footings, services, systems, piping, electrical, etc., engineering costs shall be borne by Contractor. Submit drawings, calculations, and vendor data, clearly showing revisions to accommodate substitution, for approval.

1.5.9 KEH will review and disposition requests for substitutions within 10 working days, unless evaluation requires extensive comparison or consultation.

1.5.10 For accepted substitute products, make the same submittals required for the original products by 1.2 of the Sections specifying them.

## 1.6 CONTRACTOR REPRESENTATION

1.6.1 Request for substitution constitutes representation that Contractor has investigated proposed product, has determined that it is equal to or superior to that specified, and that cost reduction offered (if there is one) is ample justification for accepting offered substitution.

1.6.2 Provide same warranty for a substitute as for specified product.

1.6.3 Coordinate installation of accepted substitutes, making changes required for work to be completed.

1.6.4 Certify that cost data presented is complete, and includes related costs under the Contract.

1.6.5 Waive claim for additional costs related to substitutions which may later become apparent.

1.6.6 Waive claim for additional performance time resulting from product substitutions.

## PART 2 - PRODUCTS

Not Used

## PART 3 - EXECUTION

Not Used

From (Contractor) \_\_\_\_\_ Contract No. \_\_\_\_\_

Project \_\_\_\_\_

Description of Proposed Substitution \_\_\_\_\_

We hereby submit for consideration the following product instead of specified item for above project:

Specification No. \_\_\_\_\_ Section \_\_\_\_\_

Drawing No. \_\_\_\_\_ Section or Zone \_\_\_\_\_

Specified Item \_\_\_\_\_

Proposed Substitution \_\_\_\_\_

Attach complete technical data, including laboratory tests and samples, as applicable.

Provide detailed comparison of the significant qualities (system performance, interface requirements, size weight, durability, performance and similar characteristics, and including visual effect where applicable) for the proposed substitution of comparison with the original requirements.

Describe other changes to drawings and specifications required by proposal as outlined below and attach additional information as necessary.

Complete Each Item

A. Changes to drawing dimensions \_\_\_\_\_

B. Effect of substitution on other systems \_\_\_\_\_

C. Outline differences between proposed substitution and specified item \_\_\_\_\_

D. Manufacturer's guarantees of proposed and specified items are:  
\_\_\_\_\_ Same \_\_\_\_\_ Different (explain on attachment)

Undersigned attests function, and quality equality equivalent or superior to specified item and has reviewed General Conditions paragraph GC-13 for assignment of responsibility if the substitution is approved.

Submitted By

Signature

Address

Date

Phone

KEH-1151 00 (10-87)

END OF SECTION

01630 - 4

C-018H-C7  
Rev 0

SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 The following documents, including others referenced therein, form part of this Section to the extent designated herein.

1.1.1.1 Washington Administrative Code (WAC)

Title 296	Labor and Industries
Chapter 296-155	Safety Standards for Construction Work

1.2 SUBMITTALS: Not Used

1.3 RECORD REQUIREMENTS

1.3.1 Hanford site work requires that certain documents, defined herein, be used to record the construction process and administration of the Contract. KEH will assemble pertinent data for final disposition. Prepare, preserve, and deliver project record documents required by this Contract to KEH. Documents are in addition to submittals required in Section 01300.

1.3.2 Mark documents that will become project records prior to use for construction. Keep copies of project record documents in field office, and make available to KEH during progress of Work.

1.3.3 Some data required for project records shall be delivered to KEH during course of construction and contract administration, while others shall be assembled after completion of construction for delivery to KEH. Document delivery by retaining copy of reports delivered during course of work until construction completion, retaining copy of letter of transmittal itemizing delivered items, or other means acceptable to KEH.

1.3.4 When information for project records is to be recorded on standard KEH forms, copies of the forms will be supplied by KEH. Samples of the appropriate required forms are included in the specification sections.

1.4 DOCUMENT IDENTIFICATION

1.4.1 General: Documents required for project records are itemized herein. Identify complete documents by title or number. Notes or markings added by hand shall be legible utilizing permanent nonsmearing marking media, such as ink or felt tip markers, in contrasting color.

1.4.2 Storage and Marking: Store one set in the field office, apart from documents used in construction, and maintain in clean, dry, and legible condition. Legibly mark items to record actual construction, including

changes to dimensions and details, manufacturer's name, catalog number, and substitute products.

1.4.3 Activity and Administrative Documents: Deliver or retain in accordance with following.

1.4.3.1 Certified Payrolls: Each week deliver certified payrolls, as required by Section 108 of Contract General Conditions, to KEH, and keep copies in the field office until Contract completion. Progress payments will not be processed unless certified payrolls for work periods have been received by KEH.

1.4.3.2 Daily force and equipment reports: Before 10 a.m. each Monday deliver one copy of a detailed daily force report, covering labor and supervision of Contractor and subcontractors for the previous week. Report shall include a detailed description of work performed by each craft, list of major items on site and any conditions which may delay or impact the project.

1.4.3.3 Weekly Safety Meetings: Conduct weekly walkaround safety inspections and safety meetings in accordance with WAC-296-155-110. Deliver one copy of meeting minutes to KEH, as completed.

1.4.3.4 Periodic Equipment Inspections: Document initial and followup, periodic heavy equipment inspections by the Contractor. Deliver one copy to KEH, as completed.

1.4.3.5 Subcontracting Plan Reports: Deliver reports documenting conformance with Subcontracting Plan, as required by Section 89 of Contract General Conditions.

1.4.3.6 Backfill Permit: Retain backfill permits approved for work required in Division 2.

1.4.3.7 Soil Compaction Procedure: Retain Forms KEH-0382 completed for work required in Division 2.

1.4.4 Construction, Quality Assurance, and Supporting Documents: Deliver in accordance with following when called for in specification sections.

1.4.4.1 Leak/Pressure Testing Records: One copy of records verifying acceptable completion of leak and pressure testing, within 5 days after completion.

1.4.5 Product Samples and Manufacturer's Instructions: In addition to submittals required in Section 01300, and requirements of this Section, information received by Contractor (from suppliers) that documents products used, and how they were installed, shall be delivered to KEH for Project Records.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

-  
END OF SECTION

SECTION 02225

EXCAVATING, BACKFILLING, AND COMPACTING FOR UTILITIES

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 The following documents, including others referenced therein, form part of this Section to the extent designated herein.

1.1.1.1 American Society for Testing and Materials (ASTM)

D 653-90 Standard Terminology Relating to Soil, Rock, and Contained Fluids

1.1.1.2 Washington Administrative Code (WAC)

Title 296 Labor and Industries  
Chapter 296-155 Safety Standards for Construction Work

1.1.1.3 Washington State Department of Transportation (WSDOT)

M41-10-91 Road, Bridge, and Municipal Construction

1.2 SUBMITTALS

1.2.1 See Section 01300 for submittal procedures.

1.2.2 Approval Required

1.2.2.1 Method to prevent injury or damage during excavations: Before excavation, submit procedure for proposed method(s) of excavation, trenching, and shoring in accordance with paragraph 3.1.3 and for prevention of overstressing existing structures or interrupting service to existing facilities. This procedure shall identify the construction competent person(s). Any shoring or use of a trenching box shall be signed by a professional engineer.

1.2.3 Approval Not Required: None

PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 General: Obtain select soils from excavation or other designated locations. Obtain onsite KEH approval for soils.

2.1.2 Backfill

2.1.2.1 Select: Well graded soil mixtures which may contain cobbles up to 6 inches in greatest dimension if uniformly distributed and not constituting more than 20% of volume of fill.

2.1.2.2 Common: Native material excavated from trench not meeting requirements of subparagraph 2.1.2.1.

2.1.3 Pipe Bedding Material: Sand, as defined in ASTM D 653, or excavated sandy material having less than 20% gravel particles, with those particles having a maximum dimension of 1/2 inch.

2.1.4 Plastic Sheet Marker: Meeting WSDOT M41-10, Section 9-15.18.

PART 3 - EXECUTION

3.1 EXCAVATION

3.1.1 Before performing excavation, obtain an excavation permit. Excavation permits will be provided by KEH in accordance with Section 01065.

3.1.2 Locate and expose underground utilities by hand tools. Use of heavy equipment and machinery is subject to approval of KEH.

3.1.3 Slope sides of excavations or trenches in accordance with WAC 296-155, Part N, Figures N-11 & N-12. Install shoring in accordance with WAC 295-155, Part N, as required to hold materials and surcharge pressure for full depth of trench.

3.1.4 Do not store excavated or other materials closer than 2 feet from edges of the excavation, unless a barrier is erected to retain such materials. Store and maintain materials in a manner that will prevent them from falling or sliding into the excavation.

3.1.5 Where slopes of excavations will intersect existing underground lines or structures such as building foundations, underground piping, electrical ducts or direct buried electrical lines, install shoring or other means of support to prevent overstressing existing structure or underground lines or prevent interrupting service to existing buildings.

3.1.6 Make excavations to line and grade shown on the Drawings and wide enough to make connections. Excavate with near vertical sides from bottom of trench up to 1 foot above pipe. Excavate trench deep enough to permit placement of compacted bedding, 4 inches minimum thickness, beneath pipe except where excavation is in undisturbed sand which will serve as bedding or where lines are to be encased in concrete. Pare holes in trench bottoms for pipe couplings so pipe will bear full length of barrel or section.

3.1.7 Keep trenches free of standing water when laying is in progress.

3.1.8 If over-excavation occurs, correct by placement of select backfill in accordance with subparagraph 3.2.1.2.

3.2 PLACEMENT

3.2.1 Backfill

3.2.1.1 General:

- a. Backfill Permit: Do not start fill or backfill without an approved permit as required by Section 01065.
- b. Remove debris and organic matter from the area to be filled or backfilled.
- c. Keep backfill materials free of frozen particles, lumps, organic matter, and trash.
- d. Do not place fill or backfill on frozen ground.
- e. Filling or backfilling by sluicing or flooding will not be permitted.
- f. Bring fill or backfill up evenly on sides of walls, structures, and utility lines to avoid unbalanced loading.

3.2.1.2 Select:

- a. Before placement of fill or backfill, demonstrate to KEH by physical test at the worksite, that the procedure proposed for placement and compaction of soils will provide the degree of compaction specified. Prepare "Soil Compaction Procedure," Form KEH-0382, in accordance with the instructions.
- b. Place backfill in accordance with WSDOT M41-10, Section 2-03.3(14)C, Method C.

3.2.1.3 Common:

- a. Place fill or backfill in layers not more than 12 inches thick, loose measurement.
- b. Compact each layer, full width, by at least 1 pass of vibratory or rammer type compactor, pneumatic-tired roller, loaded scraper wheel, grader wheel, or power roller.
- c. Mound over top layer of backfill to depth of 1 inch for each 12 inches of trench depth to maximum mound height of 6 inches.

3.2.1.4 Pipe Bedding Materials:

- a. Bedding placed beneath pipe in trenches shall be material specified in Paragraph 2.1.3.
- b. Place and compact bedding in trench prepared as specified in Paragraph 3.1.6 before laying pipe. Compact bedding as specified for select backfill.

c. Place and compact bedding material as shown on the Drawings and as specified for select backfill. Compact with care, to avoid misalignment of pipe and to provide uniform bearing along barrel of pipe.

d. Backfill trenches from elevation 1 foot above top of pipe as follows.

1) Use select fill or backfill in locations requiring encasement and at all road crossings. At road crossings, select backfill shall extend 10 beyond invert of each borrow ditch.

2) Use common fill or backfill as specified in subparagraph 3.2.1.3 for other locations.

f. Do not allow heavy construction equipment to pass over buried lines until at least 2 feet of backfill has been placed over line or until bridging has been placed across trenching and approved by KEH.

3.2.2 Plastic Sheet Marker Tape: Place continuously and directly over buried utility lines, 1 foot below finish grade. Place markers over each outside line of multiple lines.

### 3.3 FIELD QUALITY CONTROL

3.3.1 Soil Compaction Tests: Sampling and testing of compacted fill and backfill will be performed by KEH.

## SOIL COMPACTION PROCEDURE

Project Number		Project Title			Date			
Contract Number		Procedure Number		Location of Demonstration				
<b>A</b>	REQUIREMENTS			EQUIPMENT DEMONSTRATED				
	Applicable Spec. Abwy.			Type				
	Compaction Required %			Manufacturer				
	Maximum Lift Size			Model				
LABORATORY SOIL TEST RESULTS								
<b>B</b>	<input type="checkbox"/> Non-granular Materials (WSDOT Test Method No. 609)		<input type="checkbox"/> Granular Materials (WSDOT Test Method No. 606-A)		<input type="checkbox"/> In-Situ			
	Maximum Density _____ Moisture % _____		<input type="checkbox"/> Density Chart Attached		Density _____			
COMPACTION DEMONSTRATION TEST RESULTS								
Formula for Percent Compaction: $\frac{\text{dry density}}{\text{max density}} \times 100 = \text{Percent Compaction}$								
<b>C</b>	Nu. of PASSES	Depth of Lift	Percent Moisture	Lb/ft <sup>3</sup> Dry	Maximum Density	Percent Compaction	Accept	Reject
Observations or Comments								
SAMPLE								
TEST METHOD USED FOR DEMONSTRATION			<input type="checkbox"/> Nuclear Gage (ASTM D2922 & D3017)		<input type="checkbox"/> Other _____			
<b>D</b>	Contractor Representative			Date				
	Engineer/Constructor Inspector			Date				

KEH-0387 00 (03/89)

## INSTRUCTIONS

This Soil Compaction Procedure form, when approved by the Engineer/Constructor Inspector, documents witnessing and verifying the compaction procedure.

Section A is the responsibility of the Construction Contractor. It is to be completed at the time of backfill compaction demonstration and presented to the Engineer/Constructor Inspector.

Section B is completed by the Engineer/Constructor Inspector. Data entered is obtained from the agency or individual that performed testing.

Section C is completed by the Engineer/Constructor Inspector as the demonstration is performed. Using the applicable formula, the percent compaction achieved is determined and entered. Acceptance is based on the results as compared with the compaction percent required in Section A.

Section D is signed and dated by the Construction Contractor Representative acknowledging responsibility for this procedure and compliance thereto for applicable backfill operations. Section D is signed and dated by the Engineer/Constructor Inspector to signify witnessing and verification.

KCH-0382 00R (03/89)

END OF SECTION

SECTION 02235

ROAD SUBGRADE AND GRANULAR BASE

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 The following documents, including others referenced therein, form part of this Section to the extent designated herein.

1.1.1.1 Washington State Department of Transportation (WSDOT)

M41-10-91

Road, Bridge, and Municipal  
Construction

1.2 SUBMITTALS: Not Used

PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 Subgrade Fill and Backfill

2.1.1.1 General: Obtain specified soils from excavation or other designated locations. Obtain onsite KEH approval for soils.

2.1.1.2 Fill or backfill: Well graded soil mixtures which may contain cobbles up to 6 inches in greatest dimension if uniformly distributed and not constituting more than 20% of volume of fill.

2.1.2 Granular Base

2.1.2.1 Base course: WSDOT M41-10, Section 9-03.9(3), Base Course Classification.

2.1.2.2 Top course: WSDOT M41-10, Section 9-03.9(3), Top Course and Keystone Classification.

PART 3 - EXECUTION

3.1 EXCAVATION

3.1.1 Before performing excavation, obtain an excavation permit. Excavation permits will be provided by KEH in accordance with Section 01065.

3.1.2 If over-excavation occurs, correct by placement of select backfill in accordance with Section 02225.

3.2 PLACEMENT

3.2.1 Subgrade Filling and Backfilling

3.2.1.1 Remove debris and organic matter from area to be filled or backfilled.

3.2.1.2 Use only specified materials for fill or backfill. Keep materials free of frozen particles, lumps, organic matter and trash.

3.2.1.3 Do not place fill or backfill on frozen ground.

3.2.1.4 Filling or backfilling by sluicing or flooding with water will not be permitted.

3.2.2 Fill or Backfill

3.2.2.1 Before placement of fill or backfill, demonstrate to KEH by physical test at the worksite, that the procedure proposed for placement and compaction of soils will provide the degree of compaction specified. Prepare "Soil Compaction Procedure," Form KEH-0382, in accordance with the instructions.

3.2.2.2 Place backfill under roads as shown on the Drawings and in accordance with Section 02225.

3.2.3 Granular Base

3.2.3.1 Before placement of granular base, demonstrate to KEH by physical test at the worksite, that the procedure proposed for placement and compaction of base will provide the degree of compaction specified. Prepare "Soil Compaction Procedure," Form KEH-0382, in accordance with the instructions.

3.2.3.2 Construction Requirements: Construction shall be in accordance with following sections of WSDOT M41-10.

- a. Subgrade: Section 2-06.3.
- b. Equipment: Section 4-04.3(1).
- c. Mixing: Section 4-04.3(3).
- d. Placing and spreading: Section 4-04.3(4).
- e. Miscellaneous requirements: Section 4-04.3(7).
- f. Weather limitations: Section 4-04.3(8).
- g. Hauling: Section 4-04.3(9).

3.2.3.3 Shaping and Compacting:

a. Final shaping before compacting shall be accomplished using approved equipment.

b. Compaction control tests will be in accordance with WSDOT M41-10, Section 2-03.3(14)D.

3.2.3.4 Shoulders: Restore shoulder to original line and grade. Stabilize using materials specified in subparagraph 2.1.2.2, unless otherwise directed by KEH.

3.2.4 Finish Grading and Stabilization: Rake area disturbed by work, remove surface stones larger than 6 inches and dispose of excess material and debris at area designated by KEH.

3.3 FIELD QUALITY CONTROL

3.3.1 Sampling and testing of compacted fill and backfill will be performed by KEH.

## SOIL COMPACTION PROCEDURE

Project Number		Project Title		Date				
Contract Number		Procedure Number		Location of Demonstration				
<b>A</b>	REQUIREMENTS			EQUIPMENT DEMONSTRATED				
	Applicable Spec. Abwy.			Type				
	Compaction Required %			Manufacturer				
	Maximum Lift Size			Model				
<b>LABORATORY SOIL TEST RESULTS</b>								
<b>B</b>	<input type="checkbox"/> Non-granular Materials (WSDOT Test Method No. 609) Maximum Density _____ Moisture % _____		<input type="checkbox"/> Granular Materials (WSDOT Test Method No. 606-A) <input type="checkbox"/> Density Chart Attached		<input type="checkbox"/> In-Situ Density _____			
	<b>COMPACTION DEMONSTRATION TEST RESULTS</b>							
Formula for Percent Compaction: $\frac{\text{dry density}}{\text{max density}} \times 100 = \text{Percent Compaction}$								
<b>C</b>	No. of Passes	Depth of Lift	Percent Moisture	Lb/ft <sup>3</sup> Dry	Maximum Density	Percent Compaction	Accept	Reject
Observations or Comments  <div style="font-size: 4em; opacity: 0.2; transform: rotate(-15deg); position: absolute; top: 50%; left: 50%; pointer-events: none;">SAMPLE</div>								
TEST METHOD USED FOR DEMONSTRATION			<input type="checkbox"/> Nuclear Gage (ASTM D2922 & D3017)		<input type="checkbox"/> Other _____ _____			
<b>D</b>	Contractor Representative						Date	
	Engineer/Constructor Inspector						Date	

K11-0382 00 (03/89)

## INSTRUCTIONS

This Soil Compaction Procedure form, when approved by the Engineer/Constructor Inspector, documents witnessing and verifying the compaction procedure.

Section A is the responsibility of the Construction Contractor. It is to be completed at the time of backfill compaction demonstration and presented to the Engineer/Constructor Inspector.

Section B is completed by the Engineer/Constructor Inspector. Data entered is obtained from the agency or individual that performed testing.

Section C is completed by the Engineer/Constructor Inspector as the demonstration is performed. Using the applicable formula, the percent compaction achieved is determined and entered. Acceptance is based on the results as compared with the compaction percent required in Section A.

Section D is signed and dated by the Construction Contractor Representative acknowledging responsibility for this procedure and compliance thereto for applicable backfill operations. Section D is signed and dated by the Engineer/Constructor Inspector to signify witnessing and verification.

KEH-0382 00R (03/89)

END OF SECTION

02235-5

C-018H-C7  
Rev. 0

SECTION 02450

RAILROAD WORK

PART 1 - GENERAL

- 1.1 REFERENCES: Not Used
- 1.2 SUBMITTALS: Not Used
- 1.3 DELIVERY, STORAGE, AND HANDLING: Not Used

PART 2 - PRODUCTS

- 2.1 SUBSTITUTES: See Section 01630 for substitution approvals.
- 2.2 MATERIALS
  - 2.2.1 Subgrade Fill and Backfill
    - 2.2.1.1 General: Obtain select soils from excavation or other designated locations. Obtain onsite KEH approval for soils.
    - 2.2.1.2 Fill or backfill: Select fill or backfill as specified in Section 02225.

PART 3 - EXECUTION

- 3.1 PREPARATION
  - 3.1.1 Notify KEH Construction Management 2 weeks in advance of work around railroad.
  - 3.1.2 Rail and tie removal and restoration of rails, ballast, and ties will be by others.
  - 3.1.3 Subgrade Filling and Backfilling: Place select backfill under railroad roadbed in accordance with Section 02225 to 7 inches below bottom of rails.

END OF SECTION

SECTION 02512

HOT-LAID ASPHALTIC CONCRETE PAVING

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 The following documents, including others referenced therein, form part of this Section to the extent designated herein.

1.1.1.1 Washington State Department of Transportation (WSDOT)

M 41-10-91

Road, Bridge, and Municipal  
Construction

1.2 SUBMITTALS

1.2.1 See Section 01300 for submittal procedures.

1.2.2 Approval Required

1.2.2.1 Laboratory reports: Before delivery, submit laboratory reports for the following.

a. Asphalt: Showing that asphalt used in mix meets the requirements of AR-4000W in accordance with WSDOT M 41-10, Section 9-02.1(4).

b. Sections 9-03.8(2) and 9-03.8(6). Include Rice density as established by WSDOT Method 705.

1.2.3 Approval Not Required: None

PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 Asphalt: In accordance with WSDOT M 41-10, Section 9-02.1(4). Grade shall be AR-4000W.

2.1.2 Tackcoat: In accordance with WSDOT M 41-10 Section 9-02.1(6), CM S-2.

2.1.3 Aggregate: Class "B" in accordance with WSDOT M 41-10, Section 9-03.8(1), (2), and (3)B.

2.1.4 Blending Sand: In accordance with WSDOT M 41-10, Section 9-03.8(4).

2.1.5 Mineral Filler: In accordance with WSDOT M 41-10, Section 9-03.8(5).

2.1.6 Crushed gravel shoulder: WSDOT M 41-10, Section 9-03.9(3). Top course and keystone classification.

## 2.2 MIXES

2.2.1 Proportioning of Asphalt Concrete Materials: In accordance with WSDOT M 41-10, Sections 9-03.8(2) and 9-03.8(6), Class "B" asphalt concrete.

## PART 3 - EXECUTION

### 3.1 APPLICATION

3.1.1 Perform work in accordance with the following sections of WSDOT M 41-10.

3.1.1.1 Asphalt mixing plants: Section 5-04.3(1).

3.1.1.2 Hauling equipment: Section 5-04.3(2).

3.1.1.3 Rollers: Section 5-04.3(4).

3.1.1.4 Asphalt material heating: Section 5-04.3(6).

3.1.1.5 Aggregate preparation: Section 5-04.3(7).

3.1.1.6 Mixing: Section 5-04.3(8).

3.1.1.7 Spreading and finishing: Section 5-04.3(9).

3.1.1.8 Compaction: Section 5-04.3(10).

3.1.1.9 Joints: Section 5-04.3(11).

3.1.1.10 Samples: Section 5-04.3(12).

3.1.1.11 Surface smoothness: Section 5-04.3(13).

3.1.1.12 Planing bituminous pavement: Section 5-04.3(14).

3.1.1.13 Weather limitations: Section 5-04.3(16).

3.1.1.14 Change in grade of asphalt: Section 5-04.3(18).

3.1.1.15 Sealing of driving surfaces: Section 5-04.3(19).

3.1.2 Permanent Signage: In accordance with ANSI D6.1, Section II and WSDOT M 41-10, Section 8-21.

3.1.3 Shoulders: Restore shoulders to original line and grade. Stabilize using material specified in subsection 2.1.6, unless otherwise directed by KEH.

3.2 FIELD QUALITY CONTROL

3.2.1 Testing of pavement will be performed by KEH.

3.3 PROTECTION

3.3.1 Traffic Control: Institute and maintain in accordance with WSDOT M 41-10, Section 1-07.23, Subsections (1) through (4).

END OF SECTION

SECTION 02650  
PIPED UTILITIES

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 The following documents, including others referenced therein, form part of this Section to the extent designated herein.

1.1.1.1 American Society for Testing and Materials (ASTM)

A 240-92b	Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels
B 633-85	Electrodeposited Coatings of Zinc on Iron and Steel
C 516-80 (1990)	Vermiculite Loose Fill Insulation
D 2774-72(1983)	Underground Installation of Thermoplastic Pressure Piping

1.1.1.2 American Water Works Association (AWWA)

C500-86	Gate Valves for Water and Sewerage Systems
C550-90	Protective Epoxy Interior Coatings for Valves and Hydrants
C800-89	Underground Service Line Valves and Fittings
C900-89	Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. Through 12 in., for Water Distribution
C907-91	Polyvinyl Chloride (PVC) Pressure Fittings for Water, 4 in. Through 8 in. (100 mm Through 200 mm)

1.1.1.3 Federal Specifications (FS)

TT-E-489H	Enamel, Alkyd, Gloss, Low VOC Content
-----------	---------------------------------------

- 1.1.1.4 Washington State Department of Transportation (WSDOT)  
M 41-10-91 Road, Bridge, and Municipal Construction
- 1.2 SUBMITTALS
  - 1.2.1 See Section 01300 for submittal procedures.
  - 1.2.2 Approval Required
    - 1.2.2.1 Leak/Pressure test procedures: Before testing, submit procedures outlining proposed methods of testing joints in piping systems.
  - 1.2.3 Approval Not Required: None
- 1.3 QUALITY ASSURANCE
  - 1.3.1 Product Acceptability: See Section 01400 for required measures to prevent the use of misrepresented products.
  - 1.3.2 Deliverable Documentation: The following documents and records, required by this Section, shall be delivered to KEH in accordance with Section 01720.

<u>Document</u>	<u>Paragraph</u>
Flushing Verification	3.1.2.2
Leak/Pressure Test Certification	3.2.1.2

1.4 DELIVERY, STORAGE, AND HANDLING: Not Used.

PART 2 - PRODUCTS

2.1 SUBSTITUTES

2.1.1 See Section 01630 for substitution approvals.

2.2 MATERIALS

2.2.1 Pipe and Fittings

2.2.1.1 Piping shall meet the requirements of details on the Drawings and the following.

a. Pipe: PVC, 8 inch, Class 150, in accordance with AWWA C900. Joints shall be bell and spigot in accordance with AWWA C907.

b. Fittings: PVC in accordance with AWWA C907.

c. Encasement: Corrugated pipe in accordance with WSDOT M41-10 Section 9.05.1(2), minimum 14 inches.

d. Thrust Restrainers: Uni-Flange Series 1390 or approved substitute.

2.2.2 Pipe Joint Sealant for Threaded Joints: "Never-Seez Pure Nickel Special" antiseize lubricating compound manufactured by the Crawford Fitting Co, Crane Packing Company "JC-30," or Dow Corning "Moly-Kote."

2.2.3 Air Release Valves and Appurtenances

2.2.3.1 Combination Air Valve: Body and cover of ASTM A 126, Grade B cast iron, concave float of ASTM A 240 Type 304 stainless steel, stem of ASTM A 240 Type 300 stainless steel, needle and seat of nitrile rubber, trim of stainless steel. Exterior shall be corrosion protected, interior shall be epoxy-coated. Line operating pressure is 75 psi. Apco Model 145C or approved substitute.

2.2.3.2 Riser Assembly: 30-inch PVC. Orenco Systems Incorporated Model RR30 with Model FL30gv lid and INS30-2 insulation, or approved substitutes.

2.2.3.3 Loose insulation: Meeting ASTM C 516, Type II.

2.2.4 Signs

2.2.4.1 Sign: 0.0306 inch (20 gage) galvanized or stainless steel plate, or 0.80 aluminum sheet, painted with 2 coats of blue enamel. Legend shall be "60H-200 VENT VALVE" or "60H-200 SECTIONING VALVE," as appropriate, in 1-inch high black letters.

2.2.4.2 Post: T 1-3/8 x 1-3/8 x 1/8 x 6'-0" long commercial steel fence posts. Posts shall be painted with 2 coats yellow enamel conforming to FS TT-E-489, Class A.

2.2.4.3 Fasteners: 5/16-inch minimum galvanized bolts, nuts, and washers.

2.2.4.4 Paint: FS TT-E-489, Class A, blue and black.

2.2.5 Sampling Access Riser: 30-inch PVC. Orenco Systems Incorporated Model RR30 with fiberglass base, Model FL30gv lid and INS30-2 insulation, or approved substitutes.

2.2.6 Gate Valves: AWWA C500 and C550.

2.2.7 Corporation stop, saddle, and related piping: Conforming to AWWA C800.

2.2.8 Valve Boxes: Cast iron, of sliding, adjustable height type with round or oval bottom hood sections to fit over top of valve. The top section shall be recessed to receive a close fitting "eared" lid. Internal diameter of the smallest section shall not be less than 5 inches. Minimum thickness of the metal shall be 5/16 inch. Valve boxes shall be of sufficient length to extend above grade a minimum of 6 inches.

PART 3 - EXECUTION

3.1 INSTALLATION

3.1.1 General

3.1.1.1 Install piping and piping accessories in accordance with WSDOT M 41-10-91, the Drawings, and this Section.

3.1.1.2 Keep piping systems clean during work. Once fabrication has started on length of pipe, plug or cap open ends when installation is not in progress to prevent entry of dirt and other foreign material.

3.1.1.3 Where piping is laid in trench, trench shall be free of frost or frozen earth and standing water.

3.1.1.4 Where piping crosses below waterlines, maintain 2 feet minimum separation between pipes.

3.1.2 Install appropriate valve signs within 5 feet of the north side of each vent valve riser or sectioning valve box, facing south. Drive posts 2 feet into ground.

3.1.3 Flushing

3.1.3.1 Obtain written method for disposal of flushing water from Operating Contractor.

3.1.3.2 After installation and before pressure testing, and only if directed by KEH, flush piping with water until effluent is clean and contains no visible particulate matter.

3.2 FIELD QUALITY CONTROL

3.2.1 Hydrostatic Test

3.2.1.1 Furnish instruments, equipment and labor required to conduct the tests. Contractor shall suitably valve-off the outlet to previously tested sections prior to making the required hydrostatic test.

3.2.1.2 Prior to testing, all air shall be expelled from the pipe. At high points not fitted with permanent air vents, the Contractor shall, at his expense, install corporation cocks at such points so air can be expelled as the line is slowly filled with water.

3.2.1.3 The hydrostatic pressure shall be 150 psi at the highest point of the test section. The duration of each hydrostatic pressure test shall be 30 minutes. After required test pressure has been reached, pumping will be terminated. If the pressure remains constant for 30 minutes without the aid of a pump, that section of the line will not be subject to any future hydrostatic test. Maximum length of test section shall be 3000 feet.

3.2.1.4 If pressure does not remain constant, the quantity of water required to restore pressure to 150 psi shall be accurately determined by pumping through a positive displacement water meter with a sweep unit hand registering 1 gallon per revolution. The meter shall be approved by KEH. The quantity of required makeup water shall not exceed the number of gallons per hour as determined by the following formula:

$$L=(NDP^{0.5})/7400$$

where: L = allowable leakage in gallons per hour  
N = number of joints in length of pipeline tested  
D = nominal pipe diameter  
P = average test pressure during test

3.2.1.5 Document pressure testing of each section on "Leak/Pressure Test Certification" Form KEH-1757. Tests shall be performed in presence of KEH unless otherwise instructed in writing.

PRESSURE TEST CERTIFICATION					Report No.	Page 1 of 2	
Project or W.O. No.		Title		Dwg. Reference		Test Procedure/Rev.	
Construction Spec./Rev.	Code or Standard	Year	Addenda	Class	Stamp Required <input type="checkbox"/> Yes <input type="checkbox"/> No		
Description of System or Component(s) Test Boundaries							
<b>TEST PREPARATION</b>							
Notification Requirements <input type="checkbox"/> Quality Control <input type="checkbox"/> Acceptance Inspection <input type="checkbox"/> Safety Engineer <input type="checkbox"/> Customer _____ <input type="checkbox"/> Authorized Inspector <input type="checkbox"/> _____			Valve Line-up Requirements (for permanent valves installed) Valve I.D. _____ <input type="checkbox"/> Open <input type="checkbox"/> Close Valve I.D. _____ <input type="checkbox"/> Open <input type="checkbox"/> Close				
Required Test Medium		Required Test Medium Temp.		Flushing Requirements		<input type="checkbox"/> Blue Chalking Required	
Medium _____		Temp. _____		Flushing _____		<input type="checkbox"/> Soap Solution Required	
Design System	Design Test	Specified	Prepared By		Date		
Pressure _____	Pressure _____	Hold Time _____					
<b>PRE-TEST CHECKLIST</b>							
Item or Requirement				Craft Release		Quality Control	
				Initials/Date		Accept	Date
Valve line-up per design requirements (see above line up).							
Flushing of system and/or component completed per design requirements.							
All lines or components not to be tested are properly isolated or disconnected.							
Vents and openings checked; proper Pressure Relief Valve installed and discharge checked.							
Test medium per design requirements; temperature equalized.							
Medium _____ Medium Temp. _____ (ASME only)							
Test gauge(s) correct range and currently calibrated.							
SN _____ Range _____ Cal. Due Date _____							
SN _____ Range _____ Cal. Due Date _____							
SN _____ Range _____ Cal. Due Date _____							
Pressure Relief Valve properly set and currently calibrated.							
SN _____ PSI Set _____ Checked Date _____							
SN _____ PSI Set _____ Checked Date _____							
SN _____ PSI Set _____ Checked Date _____							

KEH 1757.01 (05/93)

PRESSURE TEST CERTIFICATION		Report No.	Page 2 of 2	
TEST PERFORMANCE				
Item or Requirement	Craft Release		Quality Control	
	Initials/Date	Accept	Date	
Pneumatic testing - incremental pressure recorded (when required).				
50% Tp obtained and examination conducted	= Tp _____			
Pressure increments at 0.10 Tp:	= Tp _____			
	= Tp _____			
	= Tp _____			
	= Tp _____			
	= Tp _____			
Hydrostatic testing - areas to be inspected chalked prior to application of pressure.				
Hydrostatic testing - examination conducted while system/component pressurized.				
Specified Tp _____	PSI obtained at _____			
Pneumatic testing - soap solution applied and system/components examined while pressurized.				
Specified Tp _____	PSI obtained at _____			
Specified hold time attained at _____	a.m. _____ p.m. _____	Actual Tp during final test _____		
Pressure Test <input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	By (Signature) _____	Stamp or PR No. _____	Date _____	
INSPECTION VERIFICATION				
Documentation properly prepared.	<input type="checkbox"/> Yes <input type="checkbox"/> No	Actual Tp during final inspection _____ PSI		
All joints and welded attachments to pressure retaining components chalked/soaped as applicable.	<input type="checkbox"/> Yes <input type="checkbox"/> No	Specified hold time attained <input type="checkbox"/> Yes <input type="checkbox"/> No		
All joints and welded attachments to pressure retaining components visually inspected for leakage.	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Pressure Test <input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	Acceptance Inspection Signature _____	Stamp or PR No. _____	Date _____	
OTHER				
Comments _____ _____ _____ _____ _____				
NCR No. (if applicable)	Customer Representative _____		Date _____	
	Witness - ASME Authorized Inspector _____		Date _____	
<input type="checkbox"/> Document Reviewed <input type="checkbox"/> Drawings Highlighted	Construction Engineering _____	PR No. _____	Date _____	

KEH 1757.02 (05/93)

SECTION 02741

DISPOSAL FIELD

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 The following documents, including others referenced therein, form part of this Section to the extent designated herein.

1.1.1.1 American Association of State Highway and Transportation Officials (AASHTO)

Highway Bridges 14th Edition (1989)

1.1.1.2 American Society for Testing and Materials (ASTM)

D 2564-91a Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems

D 2729-89 Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings

D 3034-89 Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings

1.1.1.3 Federal Specifications (FS)

RR-C-271D Chains and Attachments, Welded and Weldless

RR-F-221/3A Fence Posts and Accessories (Detail Specification)

TT-E-489H Enamel, Alkyd, Gloss (For Exterior and Interior Surfaces)

1.2 SUBMITTALS

1.2.1 See Section 01300 for submittal procedures.

1.2.2 Approval Required

1.2.2.1 Before excavation, submit method for excavating drainfield and placing drainrock.

1.2.3 Approval Not Required: None.

1.3 DELIVERY, STORAGE, AND HANDLING: Not Used.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

2.1.1 Drain Rock: Washed stone or gravel of uniform size between 3/4 inch and 1½ inches. Stone or gravel shall be naturally occurring material. Crushed stone is not permitted. Fines shall not exceed 12% passing a No. 4 sieve, 8% passing a No. 20 sieve, 4% passing a No. 80 sieve, or 2% passing a No. 200 sieve.

2.1.2 Geotextile: Non-woven polyester or polypropylene fabric weighing 4 oz/yd<sup>2</sup> or less.

2.1.3 Solvent Cement: ASTM D 2564

2.1.4 Chain Barricade

2.1.4.1 Posts: ASTM A 702, minimum 6 feet long, designed for driving into earth.

2.1.4.2 Chain: FS RR-C-271, Trade No. 10 galvanized steel, jack Type II.

2.1.4.3 Signs: 0.0306 inch (20-gage) galvanized or stainless steel plate, or 0.80-inch aluminum sheet, painted with 2 coats of yellow enamel. Legend shall be "S.A.L.D.S - BLDG 616A DISPOSAL FIELD" in 1-inch high black letters.

2.1.5 Paint: FS TT-E-489, Class A, yellow and black.

### 2.2 COMPONENTS

2.2.1 Distribution Piping

2.2.1.1 Header: PVC, 8 inch, SDR 35, ASTM D 3034.

2.2.1.2 Lateral Pipe: PVC, 4 inch, perforated, ASTM D 2729.

2.2.1.3 Fittings: ASTM D 3034.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

3.1.1 Remove smeared or compacted surfaces of disposal field by raking to a minimum depth of 1 inch, and remove loose material.

3.1.2 Install monitoring ports and place first lift of drain rock to the bottom elevation of laterals. Distribute and level with a minimum of equipment driving across the bed. Use tracked type equipment for distribution and leveling. Do not compact the drain rock or absorptive surface.

3.1.3 Fabricate and install laterals as shown on the Drawings.

3.1.4 Complete last lift of drain rock to the design grade. Install geotextile on leveled drain rock, lapping seams a minimum of 2 feet. Complete backfill in 1 lift and grade site as shown on the Drawings using tracked type equipment.

3.1.5 Install chain barricade posts plumb and true at 20 foot maximum spacing.

3.1.5.1 Clean and paint with 2 coats of yellow enamel.

3.1.5.2 Install chain on posts.

3.1.5.3 Mount signs on posts at equally spaced intervals around disposal field.

END OF SECTION

SECTION 02935

DRAINFIELD STABILIZATION

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 The following documents, including others referenced therein, form part of this Section to the extent designated herein.

1.1.1.1 Washington State Department of Transportation (WSDOT)

M41-10-91 Road, Bridge, and Municipal  
Construction

1.2 SUBMITTALS: Not used.

1.3 DELIVERY, STORAGE, AND HANDLING: Not Used.

PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 Seed: In accordance with WSDOT M41-10, Section 9-14.2, having a mixture of 25% intermediate wheat grass, 25% crested wheat grass, 15% sear blue bunch wheat grass, 15% big bluegrass, 10% siberian wheat grass, and 10% indian rice grass by weight.

2.1.2 Straw: In accordance with WSDOT M41-10, Section 9-14.4(1).

2.1.3 Fertilizer: In accordance with WSDOT M41-10, Section 9-14.3 and shall be controlled release containing 16% nitrogen, 16% available phosphoric acid and 16% water soluble potash (16-16-16).

PART 3 - EXECUTION

3.1 PREPARATION

3.1.1 Remove litter, visible rocks, hard lumps, large clods, and debris 6 inches or larger in any dimension.

3.2 PLANTING

3.2.1 Prepare disposal field for seeding in accordance with Section 02741, Paragraph 3.1.4.

3.2.2 Plant seed, fertilize, and mulch between February 15 and April 15 or September 1 and November 15 in the disturbed and regraded area over and around the soil absorption beds.

3.2.3 Seed: Apply 60 lb/acre in accordance with WSDOT M41-10, Section 8-01.3(4)A.

3.2.4 Fertilizer: Apply 200 lb/acre of 16-16-16 in accordance with WSDOT M41-10, Section 8-01.3(4).

3.2.5 Straw: Apply 4000 lb/acre in accordance with WSDOT M41-10, Section 8-01.3(5).

3.2.6 Protection and Care: In accordance with WSDOT M41-10, Section 8-01.3(9).

END OF SECTION