

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

In the Matter of: )  
 ) Whatcom Waterway  
 ) RI/FS  
Whatcom Waterway )  
 )  
Bellingham, Washington ) **AGREED ORDER**  
 )  
 )  
 ) No. DE 95TC-N399  
 )  
 )  
TO: Georgia-Pacific Corporation )  
 )  
133 Peachtree Street, N.E. )  
 )  
P.O. Box 105605 )  
 )  
Atlanta, Georgia 30348-5605 )

I.

Introduction

A. In entering into this Agreed Order (Order), the mutual objective of the Washington State Department of Ecology (Ecology) and Georgia-Pacific Corporation (G.P.) is to provide for a Remedial Investigation/Feasibility Study (RI/FS) at a site where there has been a release or threatened release of a hazardous substance. Pursuant to this Order G.P. agrees to perform a State Remedial Investigation/Feasibility Study (RI/FS) of the Whatcom Waterway Site as identified and defined in Section VI.1.A of this Order (the Site) pursuant to WAC 173-340.

II.

Jurisdiction

Ecology is issuing this Agreed Order ("Order") pursuant to its authority under RCW 70.105D.050(1).

III.

Findings of Fact

Ecology makes the following Findings of Fact, without admission of such facts by G.P.:

1. G.P. has owned and operated a pulp and paper mill in Bellingham, Washington, located directly adjacent to the Site, since the 1960's.

2. From 1965 through 1979, G.P. discharged wastewater containing mercury to the Site from G.P.'s chlor-alkali plant located at its pulp and paper mill.

3. Sampling of marine sediments at the Site has occurred at various times since the 1970's. Such sampling indicated the presence of mercury above Sediment Quality Standards as defined in the Sediment Management Standards, WAC 173-204.

4. These facts are documented in Ecology files, Whatcom Waterway/SIT2.3.3 - SIT2.3.7, SIT2.3.10 and SIT2.3.11.

#### IV.

##### Washington State Department of Ecology Determinations

1. G.P. is an "owner or operator" as defined at RCW 70.105D.020(11) of a portion of the Site.

2. G.P. is a "generator" as defined at RCW 70.105D.040(1)(c).

3. The Site is known as Whatcom Waterway and is located in Bellingham, Washington. The Site is described more fully in Section VI.1.A. of this Agreed Order. The Site is a "facility" as defined in RCW 70.105D.020(4).

4. The mercury found at the Site as described above is a "hazardous substance" as defined at RCW 70.105D.020(7).

5. Based on the presence of this hazardous substance at the facility and all factors known to Ecology, there has been a release or threatened release of a hazardous substance to the Site, as defined at RCW 70.105D.020(19).

6. By letter dated March 6, 1995, Ecology notified G.P. of its status as a "potentially liable person" for the Site under RCW 70.105D.040 after notice and opportunity for comment.

7. Pursuant to RCW 70.105D.030(1) and RCW 70.105D.050 Ecology reserves the authority to require potentially liable persons to investigate or conduct other remedial actions under subsequent decrees or orders with respect to the release or threatened release of hazardous substances, whenever it believes such action to be in the public interest.

8. Based on the foregoing facts, Ecology believes the RI/FS required by this Order is necessary to protect public health and the environment, and is in the public interest.

#### V.

#### Work To Be Performed

Based on the foregoing Facts and Determinations, Ecology and G.P. agree that G.P. will take the following remedial actions and that these actions will be conducted in accordance with WAC 173-340 and this Order unless otherwise specifically provided for herein:

1. Conduct a State Remedial Investigation/Feasibility Study (RI/FS) of Whatcom Waterway and prepare reports compiling results of the investigation and study. The RI/FS and reports shall be conducted and prepared in accordance with WAC 173-340, WAC 173-204, and Ecology's Sediment Cleanup Standards User Manual (as updated).

2. The RI/FS shall be conducted in accordance with the Whatcom Waterway Scope of Work attached as Exhibit A and hereby incorporated by reference as an enforceable part of this Agreed Order.

3. Ecology has the right to comment on, modify, and direct changes for all deliverables. At Ecology's discretion, G.P. shall fully correct all deficiencies and incorporate and integrate all information and comments supplied in writing by Ecology either in subsequent or resubmitted deliverables. For each and every deliverable, report, memorandum, plan or other item required under this Order, if Ecology in writing disapproves or requires modification or revision of any deliverable, report, memorandum, plan or other item, in whole or in part, G.P. shall

submit a modified or revised version thereof to Ecology which is responsive to all Ecology directions, comments, or requirements within forty-five (45) days after receiving such directions, comments or requirements in writing from Ecology, unless a shorter or longer time is agreed to by G.P. and Ecology.

4. It is Ecology's intent to submit comments on deliverables to G.P. within forty-five (45) days of receipt of the deliverables unless Ecology determines a longer time is needed. If circumstances beyond Ecology's control prevent Ecology from submitting comments within the time period originally established, Ecology will notify G.P. of that fact within that time period, and will inform G.P. of the date by which Ecology anticipates submitting its comments to G.P. The absence of express Ecology comment, approval or disapproval of any submission within any specified time period shall not be construed as approval by Ecology.

5. Except where necessary to abate an emergency situation, G.P. shall not perform any remedial actions at Whatcom Waterway outside that required by this Order unless Ecology concurs, in writing, with such additional action.

6. At any time during RI/FS activities, if additional studies under WAC 173-340 or WAC 173-204 are deemed necessary by Ecology or G.P. to complete the RI/FS, Ecology and G.P. shall attempt to reach agreement as to the need for the studies. If agreement is reached, G.P. shall consult with Ecology, prepare planning documents subject to Ecology approval, and implement the approved plans. G.P. and Ecology shall identify the need for such studies as soon as possible to avoid project delays. If additional studies constitute a substantial change to the Order, then additional public notice and opportunity to comment shall be provided.

If G.P. does not agree to perform additional studies requested by Ecology, Ecology reserves all rights under MTCA or other laws to require G.P. to perform the studies.

## VI.

Terms and Conditions of Order1. Definitions

Except for as specified herein, all definitions in WAC 173-340-200 apply to the terms in this Order.

A. Site: The Site, referred to as Whatcom Waterway, is located in Bellingham, Washington. It is generally located in the west half of Section 30, Township 38 North, Range 3 East and in Sections 25 and 36, Township 38 North, Range 2 East, Willamette Baseline and Meridian. The approximate Site boundary is depicted in Exhibit B to this Order and extends vertically and laterally to any place where hazardous substances have come to be located.

B. Agreed Order or Order: Refers to this Agreed Order and each of the exhibits to the Order. Exhibits A and B are integral parts of and are incorporated into this Order by reference.

C. Potentially Liable Person (PLP): For the purposes of this Order only, the terms Potentially Liable Person and PLP refer to G.P.

2. Public Notices

WAC 173-340-600(10)(c) requires a 30-day public comment period before this agreed order on a state RI/FS becomes effective. Ecology shall be responsible for providing such public notice and reserves the right to modify or withdraw any provisions of this Order should public comment disclose facts or considerations which indicate to Ecology that the Order is inadequate or improper in any respect. Ecology agrees to provide notice and an opportunity to comment to G.P. prior to modifying or withdrawing any provision of this Order. G.P. reserves the right to withdraw from the Agreed Order at G.P.'s discretion if G.P. objects to any such modification or withdrawal by Ecology. If G.P. withdraws from the Agreed Order, Ecology reserves all rights under MTCA or other laws to require G.P. to conduct remedial actions at the Site.

### 3. Remedial Action Costs

G.P. shall pay to Ecology costs incurred by Ecology pursuant to this Order. These costs shall include work performed by Ecology or its contractors for investigations, remedial actions, and Order preparation, oversight and administration. Ecology costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). G.P. shall pay the required amount within 90 days of receiving from Ecology an itemized statement of costs that includes a description of work performed, a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. Itemized statements shall be prepared quarterly. Failure to pay Ecology's costs within 90 days of receipt of the itemized statement of costs will result in interest charges.

By signing this Agreed Order, G.P. does not agree to pay for time spent by a private consultant hired by Ecology to review the work of G.P.'s consultant. Ecology reserves the right to require payment of those costs from G.P. through any legal means available should Ecology incur such costs.

### 4. Designated Project Coordinators

The project coordinator for Ecology is:

Name: Lucille T. Pebles  
Address: Department of Ecology  
3190 160th Avenue SE  
Bellevue, Washington 98008-5452  
Telephone: (206) 649-7272  
FAX: (206) 649-7098

The project coordinator for G.P. is:

Name: John Andersen  
Address: Georgia-Pacific West  
300 W. Laurel Street  
Bellingham, WA 98225-5593

Telephone: (360) 676-7208  
FAX: (360) 676-7247

The project coordinators shall be responsible for overseeing the implementation of this Order. To the maximum extent possible, communications between Ecology and G.P., and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order, shall be directed through the project coordinators. Should Ecology or G.P. change project coordinators, written notification shall be provided to Ecology or G.P. at least ten (10) calendar days prior to the change.

#### 5. Performance

All work performed pursuant to this Order shall be under the direction and supervision, as necessary, of a professional engineer, hydrogeologist or marine sediment expert with appropriate training, experience and expertise in hazardous waste site investigation and cleanup. G.P. shall notify Ecology as to the identity of such engineer, hydrogeologist or expert, and of any contractors and subcontractors to be used in carrying out the terms of this Order, in advance of their involvement at the Site.

G.P. shall provide a copy of this Order to all agents, contractors and subcontractors retained to perform work required by this Order and shall ensure that all work undertaken by such agents, contractors and subcontractors will be in compliance with this Order.

#### 6. Access

Ecology or any Ecology authorized representative shall have the authority to enter and freely move about the Site and other property owned or controlled by G.P. that is subject to source control and recontamination evaluation under Task 4.6 of Exhibit A at all reasonable times for the purposes of, inter alia: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Order; reviewing the progress in carrying out the terms of this Order; conducting such tests or collecting samples as Ecology or the project coordinator may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Order; and verifying the data submitted to Ecology by G.P. By signing this Agreed Order, G.P. agrees to allow access to the

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upland and aquatic portions of the Site owned or controlled by G.P. and to any other property owned or controlled by G.P. that is subject to source control and recontamination evaluation under

Task 4.6 of Exhibit A, at all reasonable times for the purposes of overseeing work performed under this Order.

Unless an emergency prevents such notice, Ecology agrees that it will provide twenty-four (24) hours notice before entering any property owned or controlled by G.P. that is described in the preceding paragraph, and will notify G.P.'s project coordinator or a G.P. representative immediately prior to entering any such property. G.P. does not agree, by entering into this Agreed Order, to allow access to any G.P. owned or controlled property not described in this section of the Order.

G.P. shall make a good faith effort to obtain access to the portions of the Site not owned by G.P. for the purpose of conducting the remedial actions required under this Order. If, after making such efforts, G.P. is unable to obtain access, G.P. shall notify Ecology immediately.

Ecology and G.P. each shall allow split or replicate samples to be taken by the other and shall provide seven (7) days notice before any sampling activity.

#### 7. Public Participation

Public participation will be accomplished by implementing a Whatcom Waterway Public Participation Plan. Ecology shall maintain the responsibility for public participation at the Site in accordance with WAC 173-340-600(8)(g). G.P. shall help coordinate and implement public participation for the Site as required by Ecology.

#### 8. Retention of Records

G.P. shall preserve in a readily retrievable fashion, during the pendency of this Order and for ten (10) years from the date of completion of the work performed pursuant to this Order, all records, reports, documents, and underlying data, or the electronic equivalent, in its possession relevant to this Order.

Should any portion of the work performed hereunder be undertaken through contractors or agents of G.P., then G.P. agrees to include in its contract with such contractors or agents a record retention requirement meeting the terms of this paragraph.

9. Dispute Resolution

G.P. reserves the right to invoke dispute resolution to resolve disputes which may arise during the implementation of this Order. Such request shall be in writing and directed to Ecology's signatory, or his/her successor(s), to this Order. Ecology resolution of the dispute shall be binding and final. G.P. is not relieved of any requirement of this Order during the pendency of the dispute and remains responsible for timely compliance with the terms of the Order unless otherwise provided by Ecology in writing.

10. Reservation of Rights/No Settlement

This Agreed Order is not a settlement under RCW 70.105D. Ecology's signature on this Order in no way constitutes a covenant not to sue or a compromise of any Ecology rights or authority. Ecology will not, however, bring an action against G.P. to recover remedial action costs paid to and received by Ecology under this Agreed Order. In addition, Ecology will not take additional enforcement actions against G.P. to require those remedial actions required by this Agreed Order, provided G.P. complies with this Agreed Order.

Ecology reserves the right, however, to require additional remedial actions at the Site should it deem such actions necessary. G.P. reserves the right to reject or refuse to perform additional remedial actions not required by this Agreed Order.

By entering into this Order, G.P. makes no admission of liability nor does it waive any right, claim, remedy, appeal, cause of action, or defense, except as specifically described herein. By signing this Agreed Order, G.P. agrees to comply with all terms of and perform all work required under this Order.

Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the releases or threatened releases of hazardous substances to Whatcom Waterway.

In the event Ecology determines that conditions at the Site are creating or have the potential to create a danger to the health or welfare of the people on the Site or in the surrounding area or to the environment, Ecology may order G.P. to stop further implementation of this Order for such period of time as needed to abate the danger.

#### 11. Transference of Property

No voluntary or involuntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by G.P. without provision for continued implementation of all requirements of this Order.

Prior to transfer of any legal or equitable interest G.P. may have in the Site or any portions thereof, G.P. shall serve a copy of this Order upon any prospective purchaser, lessee, transferee, assignee, or other successor in such interest. At least thirty (30) days prior to finalization of any transfer, G.P. shall notify Ecology of the contemplated transfer.

#### 12. Compliance With Other Applicable Laws

A. All actions carried out by G.P. pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in paragraph B of this section.

B. Pursuant to RCW 70.105D.090(1), the substantive requirements of RCW 70.94, 70.95, 70.105, 75.20, 90.48, and 90.58 and of any laws requiring or authorizing local government permits or approvals for the work to be performed under this Order that are known to be applicable at the time of issuance of the Order have been included in the Scope of Work, Exhibit A, and are binding and enforceable requirements of the Order.

G.P. has a continuing obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the work to be performed under this Order. In the event G.P. determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the work to be performed under this Order, it shall promptly notify Ecology of this determination. Ecology shall determine whether Ecology or G.P. shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, G.P. shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the work to be performed under this Order. Ecology shall make the final determination on the additional substantive requirements that must be met by G.P. and on how G.P. must meet those requirements, after consultation with G.P. Ecology shall inform G.P. in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Order. G.P. shall not begin or continue the work potentially subject to the additional requirements until Ecology makes its final determination.

Ecology shall ensure that notice and opportunity for comment is provided to the public and appropriate agencies prior to establishing the substantive requirements under this section.

C. Pursuant to RCW 70.105D.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70.105D.090(1) would result in the loss of approval from a federal agency which is necessary for the State to administer any federal law, the exemption shall not apply and G.P. shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70.105D.090(1), including any requirements to obtain permits.

### 13. Revisions to Scope of Work and Schedule

Requests by G.P. for revisions to the Scope of Work shall be documented with written justification for the change and provided to Ecology for approval before implementing the change. A revision of the schedule shall be granted only for such period as Ecology determines is reasonable under the circumstances.

A requested revision shall not become effective until approved by Ecology in writing.

The burden shall be on G.P. to demonstrate to the satisfaction of Ecology that good cause exists for granting a revision. Good cause includes, but is not limited to:

1. Circumstances entirely beyond the control and despite the due diligence of G.P. such as difficulty in obtaining access to property not owned by G.P.;

2. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, earthquake, wave or water conditions, strikes, or other labor disputes or other unavoidable casualty.

However, neither increased costs of performance of the terms of this Order, nor changed economic circumstances, nor unavailability of qualified personnel to perform work pursuant to this Order, nor internal G.P. delays shall be considered good cause for granting a revision. Any disagreement regarding requested changes shall be resolved following the dispute resolution process stated in this Order.

## VII.

### Satisfaction of this Order

The provisions of this Order shall be deemed satisfied upon G.P.'s receipt of written notification from Ecology that G.P. has completed the RI/FS required by this Order, as amended by any modifications, and that all other provisions of this Agreed Order have been complied with.

## VIII.

### Enforcement

1. Pursuant to RCW 70.105D.050, this Order may be enforced as follows:

A. The Attorney General may bring an action to enforce this Order in a state or federal court.

B. The Attorney General may seek, by filing an action, if necessary, to recover amounts spent by Ecology for investigative and remedial actions and orders related to the Site.

C. In the event G.P. refuses, without sufficient cause, to comply with any term of this Order, G.P. will be liable for:

- (1) up to three times the amount of any costs incurred by the State of Washington as a result of its refusal to comply; and
- (2) civil penalties of up to \$25,000 per day for each day it refuses to comply.

D. This Order is not appealable to the Washington Pollution Control Hearings Board. This Order may be reviewed only as provided under RCW 70.105D.060.

Effective date of this Order: January 2, 1996

GEORGIA-PACIFIC CORPORATION

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY

By James W. Cunningham  
James Cunningham  
General Manager  
Georgia-Pacific West

By Michael J. Gallagher  
Michael J. Gallagher  
Section Manager, Toxics  
Cleanup Program, Northwest  
Regional Office

Date December 21, 1995

Date January 2, 1996

**EXHIBIT A**

**WHATCOM WATERWAY**

**REMEDIAL INVESTIGATION/FEASIBILITY STUDY**

**SCOPE OF WORK**

**PURPOSE**

The purpose of this RI/FS Scope of Work (SOW) for the Whatcom Waterway is to implement the Agreed Order (AO) entered into by Ecology and G.P., to which this SOW is an Exhibit.

The RI/FS is intended to provide sufficient data, analysis, and engineering evaluations to enable Ecology to select a cleanup action alternative. It will include collection of information to evaluate the protectiveness and environmental effects of the cleanup action and any necessary mitigation, and to provide reasonable assurance that applicable laws will be met.

The RI/FS Scope of Work (SOW) is divided into six major tasks as follows:

- \* Progress Reports
- \* Work Plan
- \* Other Project Plans
- \* Remedial Investigation
- \* Feasibility Study
- \* SEPA Compliance

**TASK 1      PROGRESS REPORTS**

G.P. shall submit progress reports every two months unless a longer reporting period is approved by Ecology in writing. Progress reports shall be submitted to Ecology until satisfaction of the AO in accordance with section VII of the AO. Progress Reports shall be submitted to the Ecology project coordinator by the 10th of every second month following the effective date of the AO. If this day is a weekend or holiday, deliverables will be submitted to Ecology on the next business day. At a minimum, progress reports shall contain the following information regarding the preceding reporting period:

- \* A description of the actions which have been taken to comply with the AO and SOW during the previous reporting period;
- \* An estimate of the percentage of RI/FS work completed to date;

- \* Summaries of sampling and testing reports and other data reports received by G.P.;
- \* Summaries of deviations from approved work plans;
- \* Summaries of contacts with representatives of the local community, public interest groups, press, and federal, state or tribal government;
- \* Summaries of problems or anticipated problems in meeting the schedule or objectives set forth in the SOW and Work Plan;
- \* Summaries of solutions developed and implemented or planned to address any actual or anticipated problems or delays;
- \* Changes in key personnel; and
- \* A description of work planned for the next reporting period.

## **TASK 2      WORK PLAN**

In order to plan and manage the RI/FS, G.P. shall document project tasks and management strategies in a RI/FS Work Plan. This work plan shall include an overall description and schedule of all RI/FS activities. The work plan shall not be implemented until approved by Ecology.

The Work Plan shall specify and describe all tasks to be accomplished to complete the RI/FS, including the evaluation of cleanup action alternatives and the identification of a preferred cleanup action alternative, in accordance with the AO, and this SOW.

The Work Plan shall clearly describe the overall project management strategy for implementing and reporting on RI/FS activities. The responsibility and authority of all organizations and key personnel involved in conducting the RI/FS will be outlined.

Elements of the Work Plan include, but are not limited to, the following:

- \* A project management strategy for achieving timely submittal of high quality deliverables;
- \* A draft outline of the final RI and FS Reports including the types of data evaluation, figures, and tables that will be included;
- \* A review of existing and available data to support the development of RI/FS tasks which may include, as appropriate, the following:
  - potential sources of contamination, including upland dredge material disposal sites and hazardous sites, and information on current and historical discharges
  - sediment and water quality chemical data, including contaminant concentrations and conventional parameters, depths and location of samples, and comparison to SMS and Water Quality criteria
  - bathymetric data, including information on bank elevations and slopes
  - fish and shellfish resources; recreational, commercial, and tribal fisheries
  - benthic, epibenthic, and fish community structure
  - toxicity testing and histopathology results
  - bioaccumulation in tissues
  - occurrence of endangered or threatened species and sensitive habitats (e.g. eel grass beds, spawning areas)
  - current patterns and velocity
  - rate of natural recovery
  - deposition/resuspension rates
  - current or planned land uses and their location, which may affect investigation and cleanup activities
  - dredging records including historical in-water dredge disposal sites
  - navigational depth requirements and locations
  - structure locations (e.g. piers, docks, outfalls)
  - recent and historical aerial photographs.

- \* A description of individual RI/FS subtasks;
- \* A proposed schedule, including a timeline for completion of all RI/FS subtasks and for submittal to Ecology of interim and final deliverables, including but not limited to the deliverables enumerated in this SOW;
- \* The proposed composition and individual qualifications of a technical team or teams of personnel and/or contractors responsible for RI/FS subtasks; consultants and laboratories used by G.P. under this Order shall have demonstrated experience with sediment sampling and analyses in accordance with the SMS.

### **TASK 3 OTHER PROJECT PLANS**

G.P. will prepare for Ecology review and approval a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP). A Health and Safety Plan (HSP) shall also be submitted but is not subject to Ecology approval. Details of these plans are provided below.

Sampling and Analysis Plan - G.P. shall prepare a Sampling and Analysis Plan (SAP) for RI sampling and analysis activities in accordance with WAC 173-340-820, WAC 173-204-600, and the Sediment Cleanup Standard User's Manual, as updated. The purpose of the SAP is to provide an overview of the RI sampling program that will obtain information needed to meet the data needs described in Task 4 of the SOW.

The SAP shall describe the sampling objectives and the rationale for the sampling approach. A detailed description of sampling tasks shall then be provided, including specifications for sample identifiers; vessel positioning; the type, number, and location of samples to be collected; the analyses to be performed; descriptions of sampling equipment and collection methods to be used; description of sample documentation; sample containers, collection, preservation and handling.

Quality Assurance Project Plan - G.P. shall prepare a Quality Assurance Project Plan (QAPP) for RI sampling and analysis activities. The QAPP shall identify and describe measures that will be taken during the performance of all sampling and analysis

tasks to ensure the fulfillment of data quality objectives. Data quality objectives will reflect the criteria or threshold values used for remedial decisions. The QAPP shall be developed in accordance with Ecology guidance and the requirements of the Ecology Laboratory Accreditation Program and the Puget Sound Estuary Program (PSEP) and contain the following elements:

- \* A brief project description, referencing the attached work plan and/or SAP for details
- \* Project personnel and QA responsibilities
- \* Quality assurance objectives
- \* Field QA measures, including sample acceptability criteria, field QA samples, and calibration of field instruments, referencing the SAP for a discussion of decontamination procedures and sample custody and handling
- \* Quality assurance for chemical analyses, including:
  - Calibration procedures, references, and frequency of calibration
  - Analytical methods
  - A table of laboratory QA samples for each analytical method, including blanks, duplicates/triplicates, MS/MSDs, SRMs, surrogate spikes, etc.
  - Data management, validation, and reporting
  - Assessment of data precision, accuracy, and completeness
  - Corrective actions
  - Quality assurance reports
- \* Quality assurance for biological testing, including:
  - Biological testing procedures, including detailed method descriptions
  - Laboratory QA, including use of positive controls, negative controls, reference sediments, measurement of water quality parameters, and any other QA procedures

described for individual biological tests in the 1995 PSEP protocols for bioassays and/or modifications required by Ecology.

- Bioassay performance standards and corrective measures
- Statistical methods used to test for statistical significance and to compare site data to reference data (if performed by the laboratory, otherwise include in work plan or SAP).
- Reporting of bioassay data
- Quality assurance reports

- \* Quality assurance for physical measurements (e.g. bathymetry, and currents) shall be consistent with PSEP protocols and current national guidance (e.g. Corps of Engineers manuals)

When possible, G.P. shall use an Ecology accredited laboratory accredited for the specific analyses to be performed under this Order. If an unaccredited lab is proposed to be used, the results of recent performance audits and systems audits will be provided to Ecology prior to use of the lab.

Health and Safety Plan - G.P. shall prepare a Health and Safety Plan (HSP) for RI activities in accordance with WAC 173-340-810. The HSP must be consistent with the requirements of the Washington Industrial Safety and Health Act of 1973, Chapter 49.17 RCW, including any updates or amendments. The HSP shall identify specific monitoring and management responsibilities and activities to ensure the protection of human health activities associated with the RI.

#### **TASK 4      REMEDIAL INVESTIGATION (RI)**

RI activities conducted by G.P. will enable Ecology to develop a proposed and, after public comment, final cleanup action plan for the Whatcom Waterway. The key components of this task are as follows:

- 1) Nature and extent of sediments exceeding SQS and MCUL
- 2) Assessment of potential human health concerns

- 3) Natural resource characterization
- 4) Physical characterization
- 5) Natural recovery evaluation (if proposed by G.P.)
- 6) Source control and recontamination evaluation

Details of these elements are provided below:

1) Nature and Extent of Sediments Exceeding SQS and MCUL - Surface sediment samples shall be collected from the biologically active zone (upper 10 centimeters). Subsurface sediment sampling may be restricted to those areas where dredging is likely to be a remedial action and/or to locations where current or future activities may expose deeper contaminated sediments.

The horizontal and vertical extent of sediments requiring remediation will be determined through one or more of the following approaches:

a. Biological Testing with Optional Chemistry

Biological testing, if conducted, will use the methods outlined in WAC 173-204-315, or other equivalent acute and chronic bioassays approved by Ecology. Additional sediment will be collected and archived, to be analyzed following receipt of biological testing results at G.P.'s option. Grain size and TOC will be analyzed along with bioassays to assist in interpreting results.

b. Chemical Analyses with Confirmatory Biological Testing

Samples shall be analyzed for relevant analytes listed in Table III of the Sediment Management Standards and for other deleterious substances that have been detected at the site or would reasonably be expected to be present. Analytical techniques will be sufficiently sensitive to detect chemical concentrations at or below sediment quality standards (SQS) and Puget Sound Dredge Disposal Analysis (PSDDA) screening levels (SLs).

Confirmatory biological testing may be conducted by G.P. to confirm exceedance of SQS or MCUL criteria, and may also be required by Ecology to evaluate the potential for adverse

effects associated with any detected chemicals lacking chemical criteria.

c. Concurrent Chemical Analysis and Biological Testing

Chemical analysis and biological testing will be conducted at each station. Biological tests will be conducted as described in (a) above. Chemical analyses may be limited to indicator chemicals useful in distinguishing sources or to the primary contaminants of concern.

Depending on site characteristics identified in the work plan, different approaches may be proposed for different areas of the site.

2) Assessment of Potential Human Health Concerns - WAC 173-204-570(5) requires that cleanup standards be protective of human health. If existing information is inadequate, G.P. may be required to perform additional bioaccumulation studies to determine the human health implications of ingesting marine organisms affected by site sediment contamination. Department of Health and Ecology Tier I guidance on human health standards for sediments will be used to calculate allowable tissue concentrations. Actual tissue concentrations will be compared to calculated allowable concentrations to evaluate potential human health concerns.

3) Natural Resources Characterization - Based upon existing natural resource information, G.P. may be required to collect additional general information on natural resources at or near the site that could be potentially exposed to contaminants, including but not limited to, habitat types, sensitive ecosystems, and plant and animal species. More detailed studies may need to be conducted through a work plan addendum if required to evaluate remedial alternatives.

4) Physical Characterization - Characterization of the physical nature of the site shall provide information necessary for preliminary evaluation of the remedial options. The physical characterization shall include substrate type (i.e., grain size) and distribution, total organic carbon, in situ density/water content, interstitial salinity (if bioassays are to be performed in areas influenced by freshwater), outfall locations, bathymetry, and the relationship between bathymetry and engineered waterfront structures (e.g., piers, wharves, buildings, dolphins, beams, embankments, bulkheads, etc.).

The purpose of the analysis will be to assess the effects of the engineered structures and other physical features on the effectiveness, implementability, and costs of remedial options.

5) Natural Recovery Evaluation - If G.P. proposes natural recovery for some areas of the site, additional analyses will be required by Ecology to determine if natural recovery is a feasible component of the selected remedial option. Sediment dating (e.g., <sup>137</sup>Cs and <sup>210</sup>Pb measurements), and sediment chronologies can be used to assess sediment accumulation and mixing. Modeling may be used to assess the potential for sediment natural recovery. However, because models may not adequately account for the all physical and hydrologic processes affecting sediment deposition and resuspension in Whatcom Waterway, modeling will be used only in conjunction with site specific data on key input parameters such as sediment accumulation rates. The development of natural recovery arguments shall be fully documented with actual field data or technical references.

6) Source Control and Recontamination Evaluation - G.P. will assess the potential for recontamination of site sediments from existing sources within or immediately adjacent to the site. This will be accomplished by identifying potential sources during the compilation of existing data and conducting surface sediment sampling designed to evaluate areas that may be impacted by these sources.

G.P. shall make recommendations to Ecology if further investigation or control of sources is needed.

If G.P., based upon the assessment described above, identifies a source(s) requiring further investigation which is attributable to current or historic G.P. activities (e.g. dredge disposal sites), the source shall be characterized.

The characterization shall be sufficient to determine if the source needs to be controlled prior to implementing a cleanup action at the Whatcom Waterway site. The characterization may include ground water, surface water, waste material and soil investigations.

**TASK 5      FEASIBILITY STUDY (FS)**

G.P. shall use the information obtained in the Remedial Investigation to conduct a Feasibility Study (FS). The FS will include: the determination of cleanup standards and applicable laws, identification and screening of cleanup technologies, assembly and screening of cleanup action alternatives, a detailed evaluation of remaining alternatives and the identification of a preferred cleanup action alternative. The FS will contain sufficient data and evaluations to enable Ecology to select a cleanup action alternative.

Cleanup Standards

The SMS at WAC 173-204-570 provide for site cleanup standards that may range from SQS to MCUL concentrations. The potential for natural recovery over a 10-year time frame may also be considered in establishing a site-specific cleanup standard. Site units may be defined for areas of the site if physical, chemical or biological differences (e.g. navigation lanes, intertidal areas) at the site create requirements for using different cleanup standards or technologies.

Determination of cleanup standards will consist, at minimum, of the following steps:

- \* Define site units; cleanup standards may be different for each site unit.
- \* Cleanup to SQS is considered the goal for all cleanups. If a less stringent standard is requested an evaluation will be performed after cleanup action alternatives have been identified. The evaluation will weigh costs, net environmental benefits and technical feasibility of the various possible cleanup levels.
- \* A site-specific natural recovery evaluation may be used to select the time frame, between 0 and 10 years, for achieving cleanup standards.

Identification and Screening of Cleanup Technologies

The cleanup technologies appropriate for use must be identified before cleanup alternatives can be developed.

The following basic steps for identifying and screening cleanup technologies will be performed.

- 1) Identify cleanup technologies based on cost, net environmental benefit, and technical feasibility.
- 2) Specific identified cleanup technologies can be eliminated from further consideration on the basis of technical implementability. This initial screening step considers the following information:
  - \* Contaminant distribution.
  - \* Contaminant concentrations.
  - \* Site characteristics. The location of the contaminated sediments may prevent the use of some removal technologies.
  - \* Sediment characteristics. The physical characteristics of the sediments may affect their ability to be effectively dredged or capped.

#### Assembly and Screening of Cleanup Action Alternatives

After applicable cleanup technologies have been identified, the technologies can be assembled into cleanup action alternatives and further defined for evaluation.

Details of these steps are provided below:

- 1) Assembly of Alternatives - Assembly of cleanup alternatives will begin with identification of the general response actions that may be used for cleanup at the site.

Appropriate cleanup technologies (for each site unit if applicable) will then be identified based on the contaminants and other important considerations. If site units have been identified at the site, general response actions and cleanup technologies for all site units will be considered as a whole system to ensure that they will work together. The primary considerations in combining technologies will be the overall effectiveness in providing a benefit to the environment and the ability to implement the cleanup alternative.

2) Screening of Alternatives - A screening of cleanup action alternatives will be performed to ensure that they will meet cleanup standards and other basic requirements. Prior to conducting the screening, the following information will be determined for each alternative:

- \* The combination of cleanup technologies and the location (site unit if applicable) where they could be used
- \* The estimated range of volumes to be removed, treated, or disposed of based on initial identification of cleanup standards
- \* The general costs of the method used to remove, treat, or dispose of material (unit costs).

3) Detailed Description of Screened Alternatives - For the cleanup action alternatives that are retained after screening, a preliminary design and cost estimate will be developed prior to the detailed evaluation and screening. The preliminary design will include volume and area calculations, plan and cross-section as required, treatability studies and treatment facility design if required, and any required disposal plans. Additional analysis will be included as necessary to fully evaluate the alternatives.

4) Evaluation of Screened Alternatives - After further development of the cleanup action alternatives retained after screening, a detailed analysis will be conducted according to specific criteria outlined in, Section 9.2 of the "Sediment Cleanup Standards User Manual", Ecology 1991, as updated, and in WAC 173-340-360. These criteria will be integrated and used to rate the strengths and weaknesses of each approach to identify a preferred cleanup action alternative.

#### **TASK 6 SEPA COMPLIANCE**

The work to be performed under this Order shall conform to the State Environmental Policy Act (SEPA) Rules, chapter 197-11 WAC, as amended on March 30, 1995. The amendment requires the integration of the procedural requirements and documents of SEPA and MTCA.

In accordance with WAC 197-11-253, Ecology is the SEPA lead agency for this site. As lead agency, Ecology has conducted a preliminary evaluation and decided that there is insufficient information available at this time to make a threshold determination.

The following steps will be taken by G.P. and Ecology to fulfill the MTCA/SEPA integration requirements:

**Early Scoping** - At a minimum, drafts of the work plan and other project plans will serve as the SEPA scoping documents. The public will be invited to review and comment on these plans in accordance with the Whatcom Waterway Public Participation Plan and the schedule in this SOW.

**Threshold Determination** - Based on the comments received from early scoping, Ecology will decide whether a SEPA threshold determination can be made. If a determination of significance (DS) can be made, the work plan will be revised as necessary to address development of an Environmental Impact Statement (EIS). If a threshold determination cannot be made due to insufficient information, or if Ecology makes a preliminary determination that a determination of nonsignificance (DNS) is appropriate, G.P. will submit an environmental checklist (SEPA checklist) along with the draft FS. Prior to issuing the draft final FS for public review, Ecology will make a threshold determination. If a DS is issued, G.P. will be required to prepare an EIS. Depending on its complexity, the EIS may be included as an appendix to the FS, integrated with the FS or prepared as a companion document.

#### **DELIVERABLES**

All plans, reports and studies listed below shall be prepared as follows: A draft shall be submitted to Ecology and the landowners (owning lands within the site) for review and comment in accordance with Section V of the Agreed Order; Ecology and landowner comments shall be addressed and a draft final submitted to Ecology for public review; Ecology, with assistance from G.P., will prepare a Responsiveness Summary which will be included as an appendix to the final document; G.P. will prepare a final document addressing public comments for Ecology approval. Revisions to final plans shall be in accordance with Section VI of the AO. Modifications to final plans that Ecology determines are not significant will not be subject to public review.

- a. RI/FS Work Plan and Other Project Plans - G.P. shall submit for Ecology review and approval a RI/FS Work Plan, SAP, and QAPP in accordance with the schedule below. The HSP shall also be submitted but not reviewed by Ecology.
- b. RI Report - G.P. shall summarize and compile the results of Task 4 into an RI Report. The RI report shall follow the draft outline contained in the work plan as revised during the course of work. Revision of the outline shall require approval of Ecology.
- c. FS Report - G.P. shall prepare an FS Report in accordance with Task 5, including required SEPA documentation in accordance with Task 6.
- d. Additional Studies - G.P. shall submit draft addenda to the work plan, SAP and QAPP, as well as any other planning documents, reports, and other deliverables associated with any additional studies necessary as identified by Ecology, or G.P., in accordance with Section V of this Agreed Order within thirty (30) days of receipt of a written request by Ecology to prepare such documents, unless otherwise specified by Ecology.

#### **SCHEDULE**

The schedule for all tasks described in this SOW is presented below. If, at any time during the RI/FS process, unanticipated conditions or changed circumstances are discovered which may result in a schedule delay, G.P. shall bring such information to the attention of Ecology. Pursuant to Section VI(13) of the AO, Ecology will determine whether a schedule extension is warranted. For each and every deliverable, report, memorandum, plan, or other item required under this SOW, if Ecology disapproves or requires modification or revision of any deliverable, report, memorandum, plan, or other item, in whole or in part, G.P. shall submit a modified or revised version thereof to Ecology in accordance with Section V of the Agreed Order.

Any deadline which falls on a holiday or weekend will be extended to next business day.

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<u>RI/FS Actions</u>	<u>Completion Time</u>
Consultant Selection	60 days from effective date of AO
Draft RI/FS Work Plan SAP, QAPP, and HSP	120 days from consultant selection or effective date of AO, whichever is later
Public Review of Draft Final RI/FS Work Plan, SAP, QAPP, and HSP	30 days
Draft RI Report	270 days from Ecology Approval of the above documents*
Draft FS Report and SEPA Checklist	120 days from submission of Draft RI Report
Public Review of Draft Final RI and FS Reports Including Draft EIS (if necessary)	30 days Minimum
Final RI/FS Reports Including Final EIS (if necessary)	45 days from close of public comment period

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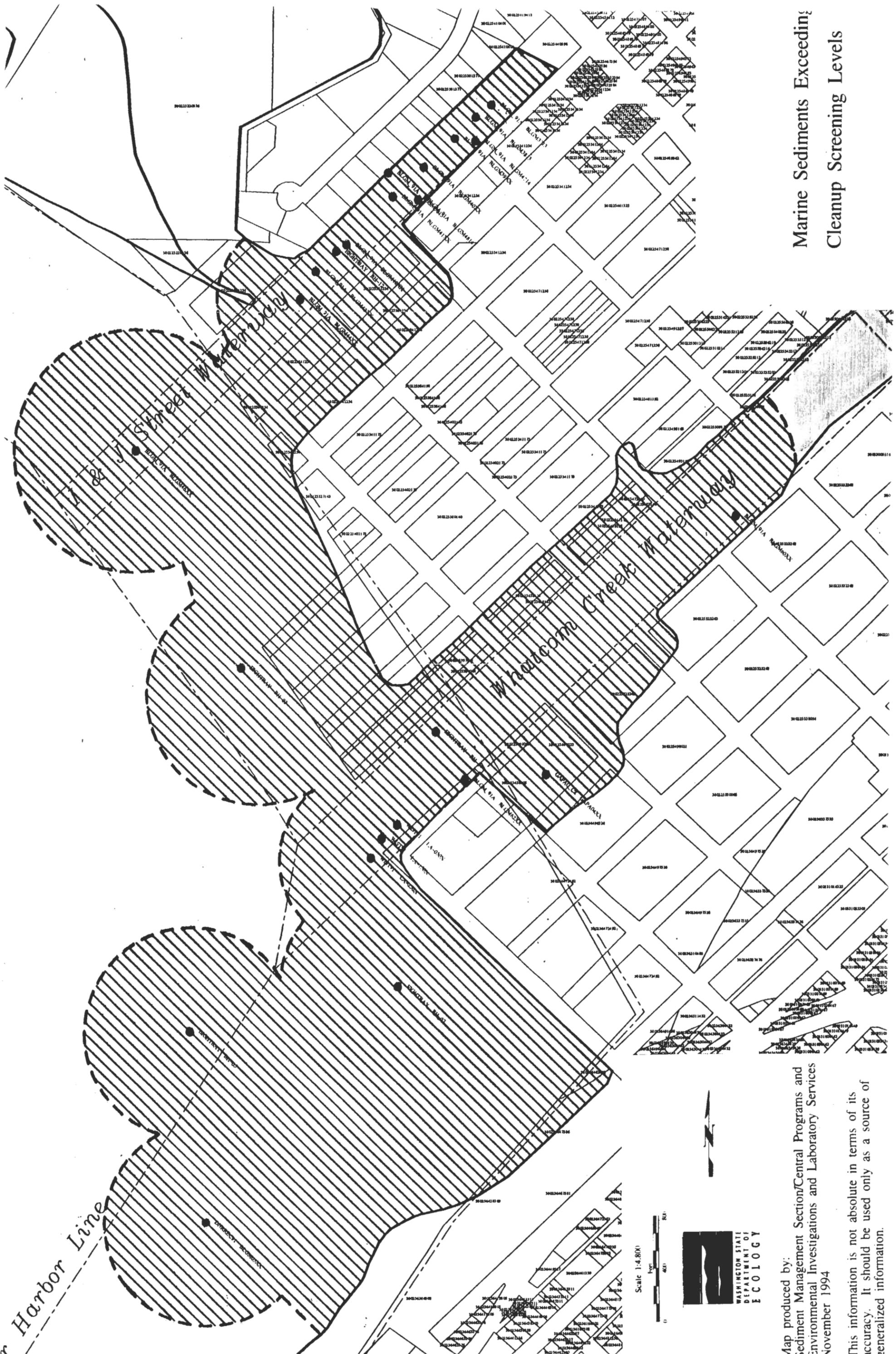
\* Bioassay testing and associated RI tasks may be delayed if Ecology and G.P. agree that this is necessary to ensure the availability and viability of bioassay organisms. Associated RI tasks include sampling that would be conducted concurrently with bioassay sampling using the same vessel and sampling equipment, or tasks that are contingent on interpretation of bioassay data. If a delay is agreed upon, a revised RI submittal date will be developed by Ecology and G.P. RI tasks unrelated to bioassay testing will continue according to the original work plan schedule.

**EXHIBIT B**

WHATCOM WATERWAY

REMEDIAL INVESTIGATION/FEASIBILITY STUDY

APPROXIMATE SITE BOUNDARY



Marine Sediments Exceeding  
Cleanup Screening Levels

Map produced by:  
Sediment Management Section/Central Programs and  
Environmental Investigations and Laboratory Services  
November 1994

This information is not absolute in terms of its  
accuracy. It should be used only as a source of  
generalized information.



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