DRAFT CONSTRUCTION SPECIFICATIONS

SPOKANE RIVER METALS SITES:
HARVARD ROAD NORTH
RECREATIONAL AREA REMEDIAL ACTION
SPOKANE, WASHINGTON

Prepared for

Washington State Department of Ecology

Prepared by

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SECTION 01010: SUMMARY OF WORK

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. General description of Work covered by contract documents.

B. Site location and access.

C. Background information.

D. Utility location.

E. Permit requirements.

F. Contractor use of site and premises.

G. Work by Ecology.

H. Construction sequencing.

I. Construction time limits.

1.2 GENERAL DESCRIPTION OF WORK COVERED BY CONTRACT DOCUMENTS

A. The Washington State Department of Ecology (Ecology) is conducting a remedial action at the Harvard Road North Recreational Area as part of a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) action. The Work included in this specification is for the Harvard Road North site only.

B. Construct the work under a Public Works contract.

C. The Work consists of the construction of the Harvard Road North Remedial Action in Spokane County, Washington. Complete the construction in accordance with the Drawings, Specifications, and other documents as referenced or included.

D. Construction includes, but is not limited to furnishing all materials, labor, disposal of all waste materials, and all other work necessary to complete the work as defined in the Contract Documents.

E. The specific elements of Work for the Harvard Road North Remedial Action include, but are not limited to:

1. Establishing pre-construction topographic site control surveying and staking.

2. Excavation and off-site disposal of contaminated material as depicted on project Drawings.
3. Constructing a gravel spawning mix cap as depicted on the project Drawings.
4. Constructing a gravel launch ramp as depicted on project Drawings.
5. Move existing large boulders to delineate capped area and launch ramp.
6. Provision and installation of additional large boulders as needed.
7. Installation of fencing to control access to parking area.
8. Installation of bollards to control vehicle access.
9. Site earthwork and grading.
10. Environmental protection measures.
11. Protection of existing vegetation.
12. Construction Quality Control.
13. Erosion and sedimentation control.
14. Topographic survey of final grades and elevations of capped area and gravel launch ramp.

F. Except as specifically noted, provide and pay for:
1. All labor, materials, and equipment.
2. All tools, incidentals, construction equipment, and machinery.

G. Pay legally required sales, consumer and use taxes.

H. Give required notices.

I. Comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities that bear on performance of the Work.

J. Do not extend Work activity into areas not designated for construction or staging under this Contract.

1.3 SITE LOCATION AND ACCESS

A. The Harvard Road North Recreational Area is located along the northern bank of the Spokane River at approximate 4.75 miles west of the Idaho State line in Spokane County, Washington. From I-90 East, the Harvard Road North project location can be accessed from Exit 296 onto East Appleway Avenue and then turning left onto North Liberty Lake Road. North Liberty Lake Road merges into Harvard Road North. From I-90 West, the Harvard Road North project location can be accessed from Exit 296 onto Indiana Avenue then turning right onto Harvard Road North. From Harvard Road North, the access road to the project location is shortly after the bridge over Spokane River on the west side. The project site will be closed to the public during construction, and the parking lot will be used for construction staging. The contractor will provide traffic control

as necessary, notably with regard to truck traffic entering and leaving Harvard Road. Refer to the project Drawings for a site location map.

B. Prospective bidders are encouraged to visit the site and attend a mandatory pre-bid meeting to be held at the site to become familiar with existing conditions.

C. Materials designated for off-site disposal shall be transported to the following facility for final disposal:

Graham Road Recycling and Disposal Facility
1820 S. Graham Road
Medical Lake, WA 99022

1.4 BACKGROUND INFORMATION

A. Soil investigations have been performed in support of this project to identify the nature and extent of metals-contaminated soil. The final design drawings and construction specifications as well as the following reports, sampling and analysis results maps and surveys are available for review and download at www.ridolfi.com/spokaneriver:

1. Harvard Road North – Sampling and Testing Report Fall 2005, prepared by Ecology, May 2006.
2. Addendum Sampling and Testing Report, Spokane River Shoreline at Harvard Road North. Prepared by Ecology, January 2007.
3. Sampling analysis results map:
   a. Approximate sampling locations and XRF results, prepared by Ecology, September 14, 2005.
4. Topographic survey representing existing conditions at the site.

1.5 UTILITY LOCATION

A. Contractor is responsible for locating all buried and aboveground utilities prior to commencing work. Contractor shall contact utility locating service at 800-424-5555 at least 48 hours prior to commencing work.

1.6 PERMIT REQUIREMENTS

A. The remedial action at the Harvard Road North site is a state-lead cleanup action. The Washington State Department of Ecology will obtain permits or ensure that substantive permit requirements are met in lieu of a permit. The following permits or substantive permit requirements will apply:

Local

- Shoreline Management Act substantive requirements - Spokane County

State

- Washington State Department of Fish and Wildlife State Hydraulic Permit Approval substantive requirements
- Washington State Department of Natural Resources Right of Entry
- Washington State Parks and Recreation Commission property access agreement

Federal

- U.S. Army Corps of Engineers Nationwide Permit 38

B. Copies of these permits and approvals are available for review at the following location:

Washington State Department of Ecology, Eastern Regional Office
N. 4601 Monroe
Spokane, WA 99205-1295

C. All Work is to be performed in compliance with permit requirements and conditions.

1.7 CONTRACTOR USE OF SITE AND PREMISES

A. Limit activities to the designated work areas as indicated on the Drawings.

B. Restore any damage to areas located outside of the limits of Work, including all access areas and routes, to the satisfaction of Ecology's Representative.

1.8 WORK BY ECOLOGY

A. Ecology will provide oversight and quality assurance to verify the Construction Contractor's Quality Control. These measures are for the sole benefit of the Ecology and do not relieve the contractor of responsibility for providing adequate quality control measures. The presence or absence of Ecology's quality assurance staff does not relieve the contractor from any contract requirement.

B. Ecology may, at its discretion, work with individuals, other Contractors, or groups to perform other Work on site. Ecology's Representative will coordinate all such work with the Contractor a minimum of 48 hours before these efforts.

C. Ecology will perform waste profiling for materials to be disposed off-site disposal at the Graham Road Recycling and Disposal Facility.

D. Contractor must coordinate all Work in this Contract with work by Ecology.

1.9 CONSTRUCTION SEQUENCING

A. The Contractor is required to submit a construction sequence schedule under Section 01300 - Submittals. The schedule must include a pre-construction meeting with Ecology and its representatives. Schedule must be based on recommended sequencing as described within these Specifications and the Drawings.

1.10 CONSTRUCTION TIME LIMITS

A. Work is to begin within five (5) working days after the notice to proceed, and be completed within 45 business days, beginning the date given in the notice to proceed by Ecology's Representative. The 45-day work window may be further limited depending on weather and resulting river flow rate.

2 PART 2 PRODUCTS

Not Used.

3 PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01300: SUBMITTALS

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Submittal procedures.

B. Construction progress schedules.

C. Proposed products list.

D. Product data.

E. Shop drawings.

F. Samples.

G. Design data.

H. Test reports.

I. Certificates.

J. Manufacturer's field reports.

K. Samples of manufactured materials.

L. Samples for testing.

1.2 RELATED SECTIONS

A. Section 01400 - Construction Quality Control/Quality Assurance.

B. Section 01700 - Contract Closeout.

1.3 REFERENCES

Not Used.

1.4 SUBMITTAL PROCEDURES

A. Transmit or deliver each submittal to Ecology's Representative. Electronic submittal is encouraged where possible and appropriate.

B. Label and number each submittal according to the identification scheme included in these specifications. Revise submittals with original identification and a sequential alphabetic suffix.

C. Identify Project, Contractor, Subcontractor or supplier; pertinent plan and detail number; and specification section number, as appropriate.

D. Apply Contractor's stamp, signature or certification that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

E. Schedule submittals to expedite the Project and deliver to Ecology's Representative. Coordinate submission of related items.

F. For each submittal, allow 10 days for review excluding delivery time to and from the Contractor.

G. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.

H. When revised for resubmission, identify all changes made since previous submission.

I. Maintain a submittal log noting submittal number, dates action taken, and personnel involved.

J. Schedule A (attached) provides a Summary Submittal List for this project.

1.5 CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial schedule with bid package per RFP.

B. Submit revised schedules weekly, and as requested by Ecology's Representative, identifying changes since previous version. Indicate estimated percentage of completion for each item of Work at each submission as well as work expected to be completed during upcoming week.

C. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities.

D. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Ecology.

1.6 PROPOSED PRODUCTS LIST

A. Within 5 days after date of Notice of Award, submit list of major Products proposed for use, with name of manufacturer, trade name, and model number or other appropriate description of each Product.

B. For Products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.7 PRODUCT DATA

A. Product Data:
   1. Submit to Ecology's Representative for review for the limited purpose of checking for conformance with specifications and contract documents.

B. Product Data For Project Close-out:
   1. Submitted to Ecology's Representative as part of combined project closeout submittal within 14 days after final inspection.

C. Submit two copies of all product data to Ecology's Representative.

D. Mark each copy to identify applicable Products, models, options, and other data. Supplement manufacturers' standard data as appropriate to provide information specific to this Project.

E. After review, distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700 - Contract Closeout.

1.8 SHOP DRAWINGS

A. Shop Drawings:
   1. Submitted to Ecology's Representative for review for the limited purpose of checking for conformance with the contract documents.
   2. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - Contract Closeout.

B. Submit two copies of shop drawings to Ecology's Representative.

1.9 SAMPLES

A. Samples:
   1. Submit to or arrange inspection by Ecology's Representative for review for the purpose of checking for general conformance with the contract documents.

2. Submit to or allow collection by Ecology's Representative to allow Quality Assurance testing by Ecology. Ecology may or may not perform testing at their discretion. If sample submittal is required, provide samples as described in Section 01400 - Construction Quality Control/Quality Assurance.
3. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - Contract Closeout.
4. Submit test results establishing compliance with appropriate specifications.

B. Submit or arrange inspection of samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing or related work.

C. Include identification on each sample, with full Project information.

D. Submit the number of samples specified in individual specification sections; one of which will be retained by Ecology's Representative.

E. Review samples that may be used in the Work are indicated in individual specification sections.

1.10 DESIGN DATA

A. Submit for Ecology's Representative records.

B. Submit information for the purpose of verifying general conformance with the design concept expressed in the Contract Documents.

C. Data indicating inappropriate or unacceptable Work may be subject to action by Ecology's Representative.

1.11 TEST REPORTS

A. Submit test reports from Construction Quality Control activities as outlined in Section 01400 for Ecology's Representative records.

B. Submit test results for information for the purpose of verifying general conformance with the design concept expressed in the Contract Documents.

1.12 CERTIFICATES

A. When specified in individual specification sections, submit certifications by the manufacturer, installation/ application subcontractor or Contractor to Ecology's Representative in quantities specified for Product Data.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Ecology's Representative.

1.13 MANUFACTURER'S FIELD REPORTS

A. Submit reports for Ecology's Representative records.

B. Submit report in duplicate within 30 business days of observation to Ecology's Representative for information.

C. Submit for information for the purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.14 SAMPLES OF MANUFACTURED MATERIALS

A. Provide samples or arrange for inspection of manufactured materials by Ecology's Representative to allow quality assurance testing in accordance with Specification Section 01400 - Construction Quality Control/Quality Assurance.

1.15 MEASUREMENT AND PAYMENT

A. Measurement refers to acceptable versions of each submittal. Payments will be based upon on receipt received by Ecology of acceptable submittals, including monthly Application for Payment.

2 PART 2 PRODUCTS

Not Used.

3 PART 3 EXECUTION

Not Used.

END OF SECTION

SCHEDULE A
SUBMITTAL LIST

The submittal list is a tabulation of requirements identified in other specification sections:

SUBMITTAL NO.	DESCRIPTION	SPECIFICATION SECTION
1	Construction Quality Control/Quality Assurance Plan	01400
2	Contractor Health and Safety Plan (HASP)	01500
2a.	Documentation that on-site workers have read HASP	
3	Construction Facilities and Temporary Controls	01500
4	As-built Survey	01450
5	Contract Closeout	01700
	Chain of custody forms for materials disposed offsite	
	Sampling/testing equipment calibration certification documentation	
	Materials testing reports as needed	
6	Earthwork (import material analyses)	02200

SECTION 01400: CONSTRUCTION QUALITY CONTROL / QUALITY ASSURANCE

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Construction quality control - control of installation.

B. Tolerances.

C. Construction quality control testing services by contractor.

D. Construction quality assurance - testing services by Ecology.

E. Manufacturers' field services.

1.2 RELATED SECTIONS

A. Section 01300 - Submittals.

B. Section 01700 - Contract Closeout: Certifications and Project Records.

1.3 REFERENCES AND STANDARDS

A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

1.4 SUBMITTALS

A. Mark all submittals in accordance with provisions of Section 01300.

B. Provide Ecology's Representative with test results and certifications from Manufacturer's Quality Control Plan a minimum of three business days prior to installation of materials on site.

C. Duplicate Samples: Provide Ecology's Representative with the opportunity to collect duplicates for all samples as specified within the appropriate technical

specifications a minimum of three business days prior to installation of materials on site.

D. Construction Quality Control Plan. Submit the following in writing:
1. Authorities and responsibilities of inspection and testing personnel.
2. Experience and qualifications of inspection and testing personnel to be assigned and name and location of the testing facility to be used.
3. Description of the testing facilities and information on when and where each of the required materials tests will be performed.

E. Chain-of-Custody Forms: Provide Ecology's Representative with copies of chain-of-custody forms along with test results and laboratory quality assurance documentation.

F. Equipment Calibration Certification: Within three business days prior to commencing with work requiring testing, provide Ecology's Representative with certification of laboratory equipment calibration to meet appropriate American Society for Testing of Materials (ASTM) standards.

1.5 CONSTRUCTION QUALITY CONTROL (CQC) - CONTROL OF INSTALLATION

A. Actively monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

B. Comply with manufacturers' instructions, including performance of each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Ecology's Representative before proceeding.

D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform work by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

1.6 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Ecology's Representative before proceeding.

C. Adjust products to appropriate dimensions; position before securing Products in place.

1.7 CONSTRUCTION QUALITY CONTROL TESTING SERVICES BY CONTRACTOR

A. Contractor will appoint, employ, and pay for specified services of an independent firm qualified to perform Construction Quality Control (CQC) testing in accordance with the testing guidelines of Project Specifications.

B. The Contractor's CQC testing firm will perform tests and other services specified in individual specification sections.

C. Collection of duplicate samples shall be arranged with Ecology's Representative a minimum of 24 hours prior to sample collection. Collection of duplicate samples shall be at the discretion of Ecology's Representative.

D. Testing and source quality control may occur on or off the project site. Ecology's Representative is to be notified of all in-situ sampling or other tests at least 24 hours prior to testing activities.

E. Reports will be submitted *by the CQC testing firm* to Ecology's Representative, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

F. Coordinate Work with Contractor's CQC testing firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested:
   1. Notify Ecology's Representative and independent CQA testing firm 24 hours prior to expected time for operations requiring services.
   2. Any tests, or other services provided by the Contractors CQC testing firm, performed without prior knowledge of Ecology's Representative will be automatically rejected and materials tested may be subject to rejection and removal. Re-testing on these materials will be performed at no cost to Ecology, and with Ecology's Representative present.

G. Construction Quality Control testing does not relieve Contractor from performing Work to Contract requirements.

H. Maintain a log of all test and samples conducted: Indicate date, time, location (on-site tests), reference specification method and personnel present at time of sampling/testing.

I. Maintain accurate, thorough file of sample and material disposal chain-of-custody forms.

1.8 CONSTRUCTION QUALITY ASSURANCE TESTING SERVICES BY ECOLOGY

A. Ecology will, at its discretion, appoint, employ, and pay for specified services of an independent firm qualified to perform construction quality assurance (CQA) testing.

B. Cooperate with the Ecology's CQA testing firm; furnish duplicate samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested:
   1. Notify Ecology's Representative 24 hours prior to expected time for operations requiring testing services.

C. Testing by Ecology does not in any way relieve Contractor to perform Work to Contract requirements including, but not limited to, CQC tests and documentation.

D. Test results by Ecology's CQA testing firm will be compared with those prepared by the Contractor's CQC test firm. Test results that indicate variance of more than 10 percent, or non-conformance with the specified requirements may require retesting at Ecology's discretion. Costs for Contractor retesting will be the responsibility of the Contractor.

1.9 MEASUREMENT AND PAYMENT

A. Work under Section 01400 - Construction Quality Control / Quality Assurance will be paid as a lump sum item under bid item number 1.0. No separate payment will be made. Includes provision of independent testing laboratory services, field and laboratory testing and analyses, suitable equipment, materials and personnel to provide the quantity and types of test required in the Technical Specifications.

2 PART 2 PRODUCTS

Not Used.

3 PART 3 EXECUTION

3.1 EQUIPMENT CALIBRATION

A. All equipment utilized for CQC field testing, QC testing, and laboratory tests are to be calibrated according to the applicable and appropriate ASTM standards within the immediate 12 months prior to use for this project. If applicable and appropriate ASTM standards are not available, use of the equipment manufacturer's recommended methods is acceptable.

B. Certification of equipment calibration by the CQC testing personnel is to be submitted to Ecology's Representative a minimum of three business days prior to use for this project.

C. Should significant variance, as determined by Ecology's Representative, in test data or measurements occur, and there is reason to believe that it may be attributed to the equipment rather than to the material or test procedures, re-calibration will be required, and subsequent documentation of satisfactory calibration activities will be submitted.

D. Documentation is required for all re-calibration efforts performed on equipment used for this project.

E. Ecology's Representative may inspect both the sampling and testing procedures prior to implementation for this work. The testing laboratory (including and equipment and personnel) should be fully operational and available for inspection at least 48 hours (two working days) prior to utilization for on-site quality control testing support.

3.2 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Immediately notify Ecology's Representative of discrepancies or unacceptable site conditions prior to commencing with new Work.

3.3 PREPARATION

A. Prepare substrate surfaces prior to applying next material or substance.

B. Apply manufacturer required or recommended materials prior to applying any new material or substance in contact or bond.

3.4 PROTECTION

A. Protect completed work elements from damage during ongoing construction operations.

B. Protect completed work from sediment, debris, or other materials found on-site.

C. Store and handle products in accordance with the manufacturer's instructions.

3.5 INSPECTIONS

A. Provide inspections of Work as specified in the Technical Specifications.

3.6 TESTING

A. Provide testing of Work as specified.

B. A Summary of tests and responsibilities follows in Table A.

Table A. Summary of conformance sample and test requirements.

Work Element	Spec. Sect.	Key Property	Sample/Test	Sampling Plan/ Frequency	Standard Test Method
Site Earthwork **Harvard Road**					
Spawning Gravel Mix Cap Material	02200	Gradation	CT/COR	l/source	ASTM D422
1 ¼-inch Chipped Basalt- Launch Ramp Material	02200	Gradation	CT/COR	1/source	ASTM D422

* Responsibility for sampling/testing:
CT - Contractors personnel (CQC activity)
COR - Sampling, testing, measuring and/or data performed by Ecology's Representative (QA activity)

END OF SECTION

SECTION 01450: AS-BUILT SURVEY

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Control points.

B. Construction staking.

C. As-built survey.

1.2 RELATED SECTIONS

A. Section 01300 - Submittals.

B. Section 02200 - Earthwork.

1.3 REFERENCE STANDARDS

A. Revised Code of Washington Chapter 58.09 RCW: Survey Recording Act [1973 c50 §1].

B. Revised Code of Washington Chapter 58.20.120 RCW: Washington Coordinate System [1989 c54 §9].

C. Datum: State Plane coordinates based on Washington State Department of Transportation Highway Monuments GP32090-52 and GP32090-53 NAD 1983/91 Washington North Zone. Vertical NAVD 88 Orthometric Heights based on WSDOT Highway Monuments GP32090-49 and GP32090-53 and GP32090-52 longitude and latitude NAD 83/91.

D. Coordinates: Horizontal and vertical coordinates shall be in feet.

1.4 SUBMITTALS

A. As-built Survey: Provide one reproducible copy of topographic survey of the project area after construction has been completed bearing seal of the Professional Land Surveyor in responsible charge. Provide survey results electronically as described in Section 3.4.

B. Surveyor will prepare a cross-sectional analysis of the site including at least three cross section alignments outlined on the design drawings.

1.5 QUALIFICATIONS

A. All surveys must be performed by or under the direct supervision of a Professional Land Surveyor, currently registered by Washington State Department of Licensing, Board of Registration for Professional Engineers and Land Surveyors.

B. All surveys must be performed within the National Map Accuracy Standards of accuracy when related to the control survey data upon which it is based.

1.6 MEASUREMENT AND PAYMENT

A. As-Built Survey: Section 01450 – As-Built Survey will be paid upon receipt of suitable as-built drawings on a lump sum basis. Work includes all survey activities for the Harvard Road North site, including but not limited to: provision of suitable equipment, materials and personnel to provide establishment of permanent horizontal and vertical control for the site from established benchmarks, cross section staking, and layout of primary project elements.

2 PART 2 PRODUCTS

2.1 MATERIALS

A. Use materials and equipment suitable for satisfactory completion of the Work.

3 PART 3 EXECUTION

3.1 CONTROL POINTS

A. Control Points: Locate survey control points as indicated on the site topographic survey available at www.ridolfi.com/spokaneriver.

B. Notify Ecology's Representative if the control points indicated in Drawings are not found in the field.

3.2 CONSTRUCTION STAKING

A. Construction staking will be based on design drawings and cross sections provided in design drawings. Contractor must provide adequate construction control to achieve grades specified in design drawings and tolerances specified in Section 02200.

3.3 AS-BUILT SURVEY

A. From established survey control, and construction baseline as shown on the drawings, conduct a topographic survey of the project area after construction is

complete. Survey shall include locations of capped areas, launch ramp, fencing, bollards, boulders placed during construction and other physical features installed during the construction.

B. As-built survey must contain at least three of the cross sections provided in design drawings. An analysis of the pre- and post-construction surveys will be conducted to ensure that final grades were achieved as specified in design drawings. Project final acceptance will be based on achieving specified grades within tolerances specified in Section 02200.

C. Collect sufficient survey data to accurately represent the project scope and area.

D. Generate one-foot contours throughout the site and show breaks in slope and other notable features.

3.4 FORMAT FOR DELIVERABLES

A. Digital Survey data for the as-built survey should include:
   1. Copy of field notes and sketches of the survey.
   2. Hard copy description of layers.
   3. Signed and sealed hard copy base map and contour plot.
   4. Provide digital information on compact disk with hardcopy printout; information should be provided in .DWG format (AutoCAD 2005 or earlier). Data should be provided in 3D format (northing, easting, elevation, or Y, X, Z).
   5. Drawing scale: Minimum one (1) inch = fifty (50) feet.
   6. Preferred layering:
      a. Repetitive symbols made into blocks, and defined on layer 0.
      b. All entities shall be drawn “by layer” as opposed to individual properties.
      c. Use one line type and one color per layer as opposed to numerous colors/linetypes on a single layer.
      d. Preface each layer with the initials of the Survey company (example, Survey Company: SC “layername”).
      e. Database text annotation will be coordinated so the text will be right-reading.
      f. Place text on separate layers.

END OF SECTION

SECTION 01500: CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Worker health and safety.

B. Site safety.

C. Temporary Utilities.

D. Temporary Controls.

E. Construction Facilities.

1.2 RELATED SECTIONS

A. Section 01300 - Submittals.

B. Section 01700 - Contract Closeout.

1.3 REFERENCES AND STANDARDS

A. Hazardous Waste Operations and Emergency Response (29 CFR 1910.120).

B. "Safety and Health Regulations for Construction" promulgated by Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act (4O U.S.C. 327 et seq.) as currently amended.

C. Hazardous Waste Operations: Chapter 296-843, Washington Administrative Code.

1.4 SUBMITTALS

A. Contractor is to provide Ecology's Representative with two (2) copies of site Health and Safety Plan (HASP) a minimum of five (5) days prior to commencing with Work. One copy of this plan is to be available on-site at all times.

1.5 WORKER HEALTH AND SAFETY

A. Soil sampling conducted at the site indicates the presence of heavy metals, including arsenic, cadmium, and zinc. A summary of soil metals concentrations is available at www.ridolfi.com/spokaneriver.

B. Site workers must have OSHA 1910.120 (40-hour HAZWOPER) training and the HASP must have procedures to maintain worker safety in the presence of metals-contaminated soil.

C. Contractor is to provide and maintain appropriate personal protective equipment for employee use during operations on-site.

D. Contractor is responsible for determining the appropriate level of personnel protective equipment to be used on-site. At commencement of construction, Level B PPE is recommended. If monitoring indicates that dust suppression measures are adequate to ensure that fugitive dust is not present, Level D PPE may be appropriate.

E. Keep additional personal protective equipment on hand for use by visitors to the site.

F. Contractor is to provide documentation that employees working on-site have read the Health and Safety Plan for the site.

G. Provide Ecology's Representative with two copies of any subsequent changes to the Health & Safety Plan.

1.6 SITE SAFETY

A. The Contractor will use high visibility fencing, barricades and/or signage to prevent the public from entering Work areas, including but not limited to: stockpiles, equipment, partially completed work and active construction areas.

B. The Contractor shall provide signage at State Park access road indicating that the area is closed to the public temporarily during construction due to the physical hazards present.

C. The Contractor shall not require any employee to work under conditions that are unsanitary, hazardous, or dangerous to the employee's health or safety, as determined under "Safety and Health Regulations for Construction" promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327 et seq.), as amended.

D. The Contractor shall fully comply with "Safety and Health Regulations for Construction" promulgated by the Secretary of Labor, which may by obtained from the Superintendent of Documents, Government Printing Office, Washington D.C. 20402-9325.

1.7 TEMPORARY UTILITIES

A. Electricity: There is no electrical service at the site.

B. Water Service: There is no water service at the site. Water required for construction operations and personnel use must be provided by the contractor.

C. Sanitary Facilities: Provide and maintain required temporary sanitary facilities at time of project mobilization. Maintain in clean and sanitary condition. Upon completion of construction, remove temporary sanitary facilities.

1.8 TEMPORARY CONTROLS

A. Dust Control:
   1. Use dust palliatives, sprinkling, or other measures.

B. Housekeeping:
   1. Provide suitable facilities for cleaning personnel, equipment, and vehicles.
   2. Do not allow equipment or vehicles to track soil off-site.

1.9 CONSTRUCTION FACILITIES

A. Temporary Construction Entrance:
   1. Utilize construction equipment that can be accommodated on existing access road to the site.
   2. Provide means of removing mud from vehicle wheels before entering streets consistent with local regulations.
   3. Restore access route to site to pre-project condition prior to completion.
   4. All access road improvements must be approved by Ecology's representative prior to installation.

B. Parking:
   1. Harvard Road North Site: There is a parking lot west off of Harvard Road North adjacent to the work area.

C. Progress Cleaning and Waste Removal:
   1. Maintain areas free of waste materials, debris, and rubbish. Maintain site and access areas in a clean and orderly condition.
   2. Remove debris and rubbish from the site. Do not bury debris or rubbish.
   3. Stockpile excavated materials to be disposed of off-site as described in Section 02200.
   4. Collect and remove waste materials, debris, and rubbish from site at least weekly and legally dispose off-site.

D. Removal of Temporary Utilities, Facilities, and Controls:
   1. Remove temporary utilities, equipment, facilities, and materials prior to Final Application for Payment inspection.

1.10 MEASUREMENT AND PAYMENT

A. Work under Section 01500 - Construction Facilities and Temporary Controls is considered part of mobilization / demobilization and will be paid under that line item.

2 PART 2 PRODUCTS

Not Used.

3 PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01700: CONTRACT CLOSEOUT

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Closeout procedures.

B. Final cleaning.

C. Project record documents.

1.2 RELATED SECTIONS

A. Section 01400 - Construction Quality Control/Quality Assurance.

B. Section 01500 - Construction Facilities and Temporary Controls.

1.3 CLOSEOUT PROCEDURES

A. Final Inspection:

1. The Contractor shall request the scheduling of a final inspection in writing at least 5 business days prior to the scheduled completion date. The project shall be in a state in which all Work under the Contract, including modification work, is or will be 100 percent complete prior to inspection by Ecology's team members. Ecology's Representative will either confirm in writing the date of inspection requested or will make arrangements for a mutually acceptable date.
2. If, during this inspection, deficiency items are discovered, those items will be developed into a punch-list and provided to the Contractor for completion within a reasonable specified time frame. A formal "punch list" will be forwarded to the Contractor within seven (7) business days with the time frame established for completion of all items. A "back-check" inspection will be conducted to verify all deficient items were completed. If deficiencies are not completed by the Contractor and accepted by Ecology within the time frame established, Ecology may take the necessary steps to complete all outstanding Work items under another source and deduct that amount from the Contract by modification.
3. If after conclusion of the "final inspection" it is determined that the facility is not in a state for "final acceptance," but has a high percentage of the Work complete and the project area is available for the purpose for which it was intended with no omission in essential parts, Ecology's Representative may conclude that the Contract Work is substantially complete. Ecology's Representative will establish by letter the actual

substantial completion date and establish a time frame upon which the punch-list items are to be completed.

B. Reinspection: If the reinspection of deficient or incomplete items becomes necessary, the cost of reinspection will be at the expense of the Contractor.

C. Provide final submittals to Ecology's Representative that are required by Ecology or other authorities in the condition and within the time frames stated within the Contract Documents.

1.4 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.

B. Completely remove waste, surplus materials, rubbish, and construction facilities from the site.

1.5 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
1. Drawings
2. Specifications
3. Addenda
4. Change Orders and other modifications to the Contract
5. Reviewed Product Data and Samples
6. Manufacturer's instruction for assembly, installation, and adjusting
7. Quality Control documentation and test results per Section 01400

B. Ensure entries are complete and accurate, enabling future reference by Ecology's Representative.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and modifications.

F. Record Drawings: Legibly mark each item to record actual construction including:
   1. Field changes of dimension and detail.
   2. Details not on original Drawings.

G. Submit all record documents to Ecology's Representative prior to Final Application for Payment.

1.6 MEASUREMENT AND PAYMENT

A. Work under Section 01700 - Contract Closeout will be paid as a lump sum item under bid number one. There is no separate measurement and payment for the Work under this Section.

B. Final Payment Request: A release of claims must be submitted before final payment. The final payment request will be rejected and returned to the Contractor if all items required under the Contract have not been completed, submitted, approved, and accepted prior to the receipt of the request, i.e., deficient Work items, record drawings, payrolls, reports, etc.

1.7 FINAL ACCEPTANCE

A. Final acceptance of the Contract Work occurs when acceptance of all requirements under the Contract have been completed and accepted by Ecology.

2 PART 2 PRODUCTS

Not Used.

3 PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 02200: EARTHWORK

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Site grading.

B. Cap materials.

1.2 RELATED SECTIONS

A. Section 01300 - Submittals.

B. Section 01400 - Construction Quality Assurance/Quality Control.

1.3 REFERENCES

A. ASTM International:
   1. ASTM D422 - Standard Test Method for Particle-Size Analysis of Soils.

B. EPA SW-846 - Test Methods for Evaluating Solid Waste, Physical/Chemical Methods:
   1. Method 6010B - Inductively Coupled Plasma-Atomic Emission Spectrometry.
   2. Method 6020 - Inductively Coupled Plasma-Mass Spectrometry.

1.4 SUBMITTALS

A. Provide Ecology's Representative with duplicates of all samples as outlined in Section 01400 - Construction Quality Control/Quality Assurance.

B. Mechanical Analysis: Provide one per material type or change in material, in accordance with ASTM D422.

C. Provide Ecology's Representative with hazardous waste disposal certification as necessary depending on the results of Ecology's materials testing.

1.5 DEFINITIONS

A. Cap Materials: Clean material from commercially available sources that is free of debris, concrete, sod, or clumps.

B. Site Excavation: Consists of the required removal and proper disposal of every description and of whatever substances encountered within the project's grading

limits and located outside of the limits of excavation for waste materials. Perform excavation to the lines and grades indicated on the Drawings.

C. Grading: Operations required for smoothing disturbed areas and bringing site grade to lines and grades indicated on the Drawings.

1.6 BACKGROUND DATA

A. A soil investigation has been performed in support of this project to identify the nature and extent of metals-contaminated soil. The Harvard Road North - Sampling and Testing Report Fall 2005, prepared by Washington Department of Ecology, May 2006 (available for review at www.ridolfi.com/spokaneriver).

B. Addendum Sampling and Testing Report, Spokane River Shoreline at Harvard Road North, prepared by Ecology, January 2007.

1.7 REGULATORY REQUIREMENTS

A. Work performed under this Contract shall comply with OSHA requirements in 29 CFR 1910 and 29 CFR 1926, especially OSHA's Hazardous Waste Operations and Emergency Response Standard 29 CFR 1926.65/29 CFR 1910.120 and state specific OSHA requirements where applicable.

B. Interpretation of standards shall be submitted to the appropriate agency for resolution prior to commencing with the Work.

C. Where requirements of this specification, applicable laws, criteria, ordinances, regulations and referenced vary, the most stringent requirements shall apply.

1.8 PROTECTION

A. Protect trees, and other features to remain. All existing vegetation at the site to remain and be protected unless removal is specifically authorized by Ecology's Representative. Field consultation with Ecology's representative *is required* prior to any vegetation removal. See Drawings for more information on plant protection.

B. Protect bench marks, and site control to remain.

C. Construction activity must be limited to the specific remedial areas shown on the Drawings. Restore all disturbed areas not designated for improvements.

D. Provide dust control measures adequate to satisfy regulatory standards.

1.9 MEASUREMENT AND PAYMENT

A. Cap Materials: Measurement is by the standard ton of actual quantity of material delivered and placed. Cap materials will be measured by the ton in the haul vehicle at the point of delivery or as set forth by the load ticket provided by the material supplier. Includes Cap Materials testing, on-site stockpiling as necessary, loading, haul, placement and compaction. Payment is by the unit price per ton bid for Cap Materials.

C. Boulders: To the greatest extent possible, boulders currently on site will be rearranged to satisfy project design goals. Contractor to work with Ecology's representative to achieve these goals. If purchase of additional boulders becomes necessary, as determined by Ecology's Representative, measurement is per boulder delivered and placed and payment is by the unit price bid per boulder. Delivery of additional boulders to the site shall not occur without inspection and approval of product by Ecology's Representative.

2 PART 2 PRODUCTS

2.1 CAP MATERIALS

A. Obtain suitable cap materials that meet the specification requirements from off-site areas as approved by Ecology's Representative.

B. Provide cap material that is free of trash, vegetation, corrosive, organic or decomposable material, or metals in excess of background concentrations as specified by Ecology.

C. Cap materials shall consist of well mixed rounded or subrounded granular material, either naturally occurring or processed. It shall be essentially free from wood waste or other extraneous or objectionable materials.

D. Harvard Road North gravel launch ramp shall meet the following requirements for grading and quality when placed in hauling vehicles for delivery to the site or during manufacture and placement into a temporary stockpile. The exact point of acceptance will be determined by Ecology's representative.

Gravel launch ramp 1 1/4-inch minus chipped basalt (WSDOT 1 ¼" E Chips)	
Sieve Size	**Percent Passing by Weight**
1 ¼"	100
1"	80-90
5/8"	28-38
3/8"	2-6
No. 4	1-5
No. 200	0-1

E. Imported boulders are to match type of material and sizing of existing boulders at the Harvard Road North site. Boulders will be inspected and approved by Ecology's Representative before acceptance of any delivery or placement.

F. Harvard Road North Site spawning mix cap material shall conform to the following gradation requirements:

Preliminary Harvard Road North Gravel Spawning Mix Cap	
Sieve Size	**Percent Passing by Weight**
3-inch	100
2-inch	95-85
1-inch	90-70
1/2-inch	70-50
No. 4	40-25
No. 10	30-10
No. 40	2-0
No. 200	2-0

2.2 WATER

A. Provide clean potable water, free from deleterious substances, trash and vegetation.

2.3 EQUIPMENT

A. Provide equipment of suitable size, weight and traction necessary to perform the Work specified herein and that can access the site via existing access points.

B. Contractor is responsible for securing their supplies and equipment. Ecology will identify acceptable locations for staging and parking.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that survey benchmarks, control elevations and intended elevations for the Work are as indicated.

B. Notify Ecology's Representative immediately of discrepancies between survey information and information in Drawings, should any such discrepancies be identified. Under this circumstance, commence with earthwork operations only as directed by Ecology's Representative.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Protect benchmarks, survey control points and other features from excavating equipment and vehicular traffic.

C. Ecology will perform waste profile sampling and analysis prior to disposal of excavated materials.

D. Coordinate with Ecology's selected soil disposal facility (Graham Road Recycling and Disposal Facility) at least ten (10) working days prior to initiating soil disposal activities to allow facility review of waste profiling analyses.

3.3 STOCKPILING

A. To the extent possible use existing gravel parking area for equipment staging and stockpiling of materials. Use of any other portion of the site must be approved by Ecology's Representative.

B. Stockpile clean materials in non-vegetated areas that are convenient to work-in-progress. Verify location selection with Ecology's Representative.

C. Stockpile in sufficient quantities to meet project schedule and requirements.

D. Stockpile excavated materials on liners in non-vegetated areas that are convenient to work-in-progress. Verify location selection with Ecology's Representative.

E. Excavated material stockpile areas will be sampled by Ecology to determine if cross contamination has occurred. In the event of contamination confirmation, materials shall be excavated and transported to selected disposal facility.

F. Wet and cover excavated and stockpiled material to prevent wind erosion as

needed:

1. Maintain exclusion zone around stockpiled materials to eliminate the chance of public exposure.

G. Separate differing materials with dividers or stockpile apart to prevent mixing.

H. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

I. Do not stockpile topsoil greater than 8-feet in height nor for a time period of greater than 1 month.

J. Upon project completion, remove excess stockpile material and liners, leave area clean and neat and return to pre-project condition.

3.4 EXCAVATION

A. Excavate material indicated on drawings to a depth of 1 foot.

B. Provide dust controls during excavation adequate to satisfy regulatory standards.

C. Maintain public exclusion zone in construction areas.

D. Schedule order of work to minimize excavation timeframe.

3.5 CAP AND FILL PLACEMENT

A. Uniformly operate hauling and spreading equipment over the full width of each lift to prevent differential compaction.

B. Avoid excessive compaction of cap material within the spawning area. Use track-walk or similar method to create finished surface.

C. Total thickness of clean backfill and capping is to be 1-foot throughout remediation area as indicated on project Drawings.

D. Cap boat launch ramp area with 6-12 inches of 1 ¼-inch minus chipped basalt as specified as necessary to achieve desired grade. Place materials in 6-inch lifts, completing roller compaction or each lift before placing next layer.

3.6 TOLERANCES

A. Provide a final grade that is plus or minus 0.10 foot from required elevation. Final project acceptance will depend on comparison of topographic surveys to

establish that final grade is within acceptable tolerance.

3.7 QUALITY CONTROL

A. Section 1400 - Construction Quality Control/Quality Assurance: Field inspection and testing.

B. If tests indicate that the Work does not meet specified requirements, remove Work, replace and retest. Coordinate any retesting with Ecology's Representative.

C. Provide duplicate samples to Ecology's Representative for CQA testing as outlined in Section 01400.

END OF SECTION

SECTION 02374: EROSION CONTROL

1 PART 1 GENERAL

1.1 RELATED SECTIONS

A. Section 02200 – Earthwork.

1.2 REFERENCES

A. ASTM International:
1. ASTM D3786 - Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics.
2. ASTM D4355 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
3. ASTM D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
4. ASTM D4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
5. ASTM D4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
6. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile.
7. ASTM D4833 - Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics.
8. ASTM D6475 - Test Method for Measuring Mass Per Unit Area of Erosion Control Blankets.

1.3 SUBMITTALS

A. Section 01300 - Submittals: Requirements for submittals.

B. Erosion and Sedimentation Control Plan and maintain one copy of document on site.

C. A sample of the silt fence geotextile material or other material used for erosion control, including manufacturer specifications, shall be provided to Ecology's representative a minimum of 2 days prior to installation. Material must be approved before installation can proceed.

1.4 MEASUREMENT AND PAYMENT

A. Work under Section 02200 - Erosion Control will be paid as a lump sum item under bid item number one. No separate payment will be made.

2 PART 2 PRODUCTS

2.1 GEOTEXTILE MATERIALS

A. Provide woven or non-woven geotextile silt fence material that meets or exceeds the following performance or physical specifications:

Physical Properties for Silt Fence Geotextile Material		
PROPERTY	**TEST VALUE**	**TEST METHOD**
Grab Tensile Strength (lb)	124 lbs	ASTM D4632
Grab Tensile Elongation (%)	20%	ASTM D4632
Mullen Burst (psi)	300	ASTM D3786
Puncture (lb)	65	ASTM D4833
Trapezoidal Tear (lb)	65	ASTM D4533
UV Resistance (% @ 500 hours)	80%	ASTM D4355
Apparent Opening Size (US Sieve)	30	ASTM D4751
Permittivity(sec^{-1})	0.1	ASTM D4491
Flow Rate (gal/min/ft2)	8	ASTM D4491

2.2 SITE STABILIZATION

A. Incorporate erosion control into the project at the earliest practicable time.

B. Construct, stabilize and activate erosion controls before site disturbance within tributary areas of those controls.

C. Stockpile and waste pile heights shall not exceed 8 feet. Slope stockpile sides at 2:1 or flatter.

D. Stabilize any disturbed area of affected erosion control devices on which activity has ceased and which will remain exposed for more than 20 days.

E. Stabilize stockpiles immediately after placement of materials. Wet and cover as necessary to prevent water and wind erosion.

2.3 FIELD QUALITY CONTROL

A. Inspect erosion control devices on a weekly basis and after each runoff event.

B. When inspection indicates erosion control devices are not effective, make necessary repairs to ensure controls are in good working order.

2.4 PROTECTION

A. Section 02200 - Earthwork: Requirements for protecting finished Work.

END OF SECTION

SECTION 03300: CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Concrete Materials and Installation.

B. Tubular form materials and Installation.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Concrete - Vertical in Forms:
1. Basis of Payment: Includes concrete, placement accessories, consolidating, curing.

1.3 REFERENCES

A. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.

B. ACI 305R - Hot Weather Concreting.

C. ACI 306R - Cold Weather Concreting.

D. ASTM C94 - Ready-Mixed Concrete.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 304.

B. Conform to ACI 305R when concreting during hot weather.

2 PART 2 PRODUCTS

2.1 CONCRETE MATERIALS

A. Cement: ASTM C150, Type I – Normal.

B. Fine and Coarse Aggregates: ASTM C33.

C. Water: Clean and not detrimental to concrete.

2.2 CONCRETE MIX

A. Mix and deliver concrete in accordance with ASTM C94, Alternative No. 1.

B. Concrete used in bollard installation shall be in compliance with Washington State Department of Transportation's "Commercial Concrete" Specification.

C. Provide concrete to the following mix design:

Unit	Measurement
Compressive Strength (28 day)	3000 psi

2.3 TUBULAR CONCRETE COLUMN FORMS: SONOTUBE CONCRETE FORMS OR APPROVED EQUIVALENT

A. Description: Multiple layers of 100 percent recycled paperboard, spirally wound, and laminated with adhesive.

B. Interior Surface: Smooth with spiral seam. Alathon release and moisture barrier coating.

C. Exterior Surface: Micryl moisture barrier coating.

D. Spiral Mark: Impart visible spiral mark on concrete columns.

E. 1-piece, 1-time-use forms.

F. Inside Diameter: 18 inches as indicated on the Drawings.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas to receive forms and concrete. Notify Ecology's Representative if areas are not acceptable. Do not begin installation until unacceptable conditions have been corrected.

3.2 INSTALLATION OF FORMS

A. Place and brace column forms in accordance with manufacturer's instructions.

B. Erect forms at locations and to elevations as indicated on the Drawings.

C. Erect column forms plumb.

D. Avoid damaging interior surface of forms.

E. Do not use forms that are out-of-round, deformed, damaged, or contain defects that could impair concrete surface.

F. Protect forms from rain and snow if work is delayed and forms have been positioned for placing concrete.

G. Place waterproof sheeting over top of forms to prevent damage to interior surface by rain or snow.

H. Do not allow forms to stand in water or snow before placing concrete.

3.3 PLACING CONCRETE

A. Place concrete in accordance with ACI 304.

B. Notify Ecology's Representative a minimum 24 hours prior to commencement of operations.

C. Ensure concrete embedded parts of installation are not disturbed during concrete placement.

D. Do not place concrete if column forms are wet.

E. Apply form release coating to interior surface.

F. Place concrete at pour rate in accordance with manufacturer's instructions.

G. Do not touch interior surface of forms with vibrator.

H. Do not vibrate concrete from exterior of forms.

3.4 CURING AND PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

3.5 REMOVAL OF FORMS

A. Remove column forms in accordance with manufacturer's instructions.

B. Remove forms as soon as removal operations will not damage concrete, a minimum of 24 hours and a maximum of 5 days after placing concrete.

C. Prevent damage to concrete from form removal.

3.6 FIELD QUALITY CONTROL

A. Field inspection will be performed in accordance with ACI 301 by Ecology's Representative.

B. Provide free access to Work and cooperate Representative.

3.7 PATCHING

A. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Ecology's Representative upon discovery.

3.8 DEFECTIVE CONCRETE

A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

B. Repair or replacement of defective concrete will be determined by Ecology's Representative.

C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Ecology's Representative for each individual area.

END OF SECT

90% DESIGN SUBMITTAL FOR

SPOKANE RIVER METALS SITES
HARVARD ROAD NORTH RECREATIONAL AREA
REMEDIAL ACTION

SPOKANE COUNTY, WASHINGTON

DRAWING INDEX

Sheet No.	Title
C1	SITE AREA AND ACCESS LOCATION
C2	CAPPING PLAN
C3	CROSS SECTIONS
C4	CROSS SECTIONS
C5	CROSS SECTIONS
C6	CONSTRUCTION DETAILS
C7	CONSTRUCTION DETAILS

NOT FOR
CONSTRUCTION

PREPARED FOR:

WASHINGTON STATE DEPARTMENT OF ECOLOGY
TOXICS CLEANUP PROGRAM
EASTERN REGION
4601 N. MONROE ST
SPOKANE, WA 99205

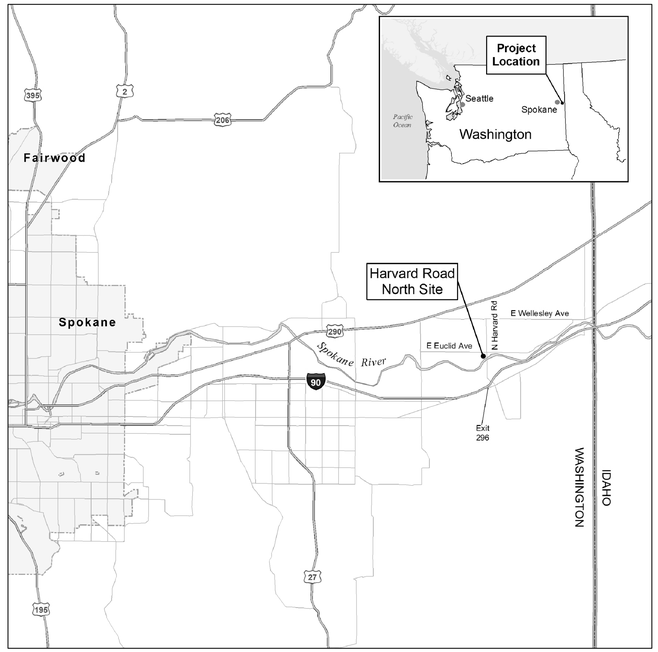
WASHINGTON STATE
DEPARTMENT OF
ECOLOGY

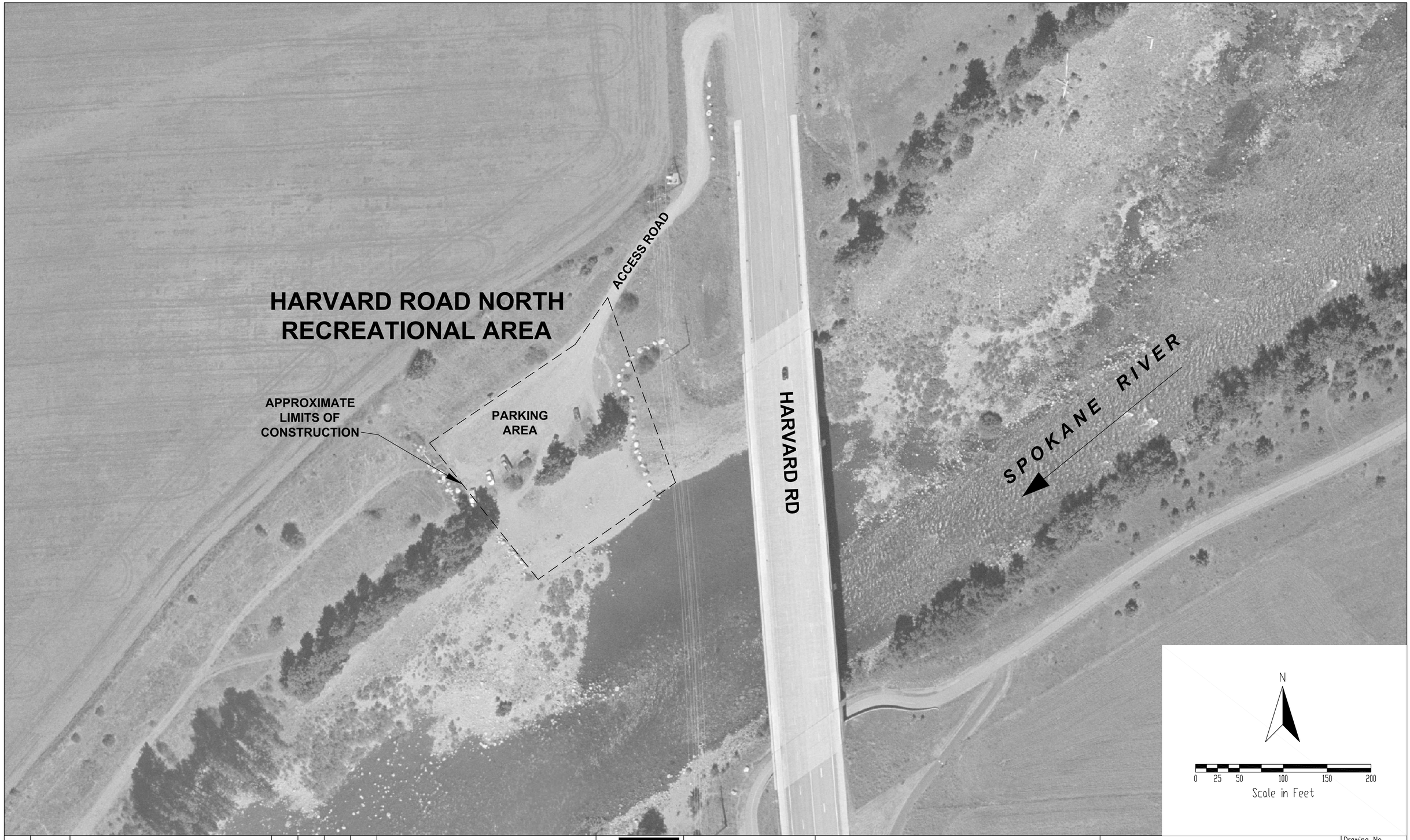
MARCH 2008

RIDOLFI Inc.

1011 WESTERN AVE, STE 1006
SEATTLE, WA 98104

VICINITY MAP





REV.	DATE	DESCRIPTION	DES BY	DWN BY	CHK BY	APP BY
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RIDOLFI Inc.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

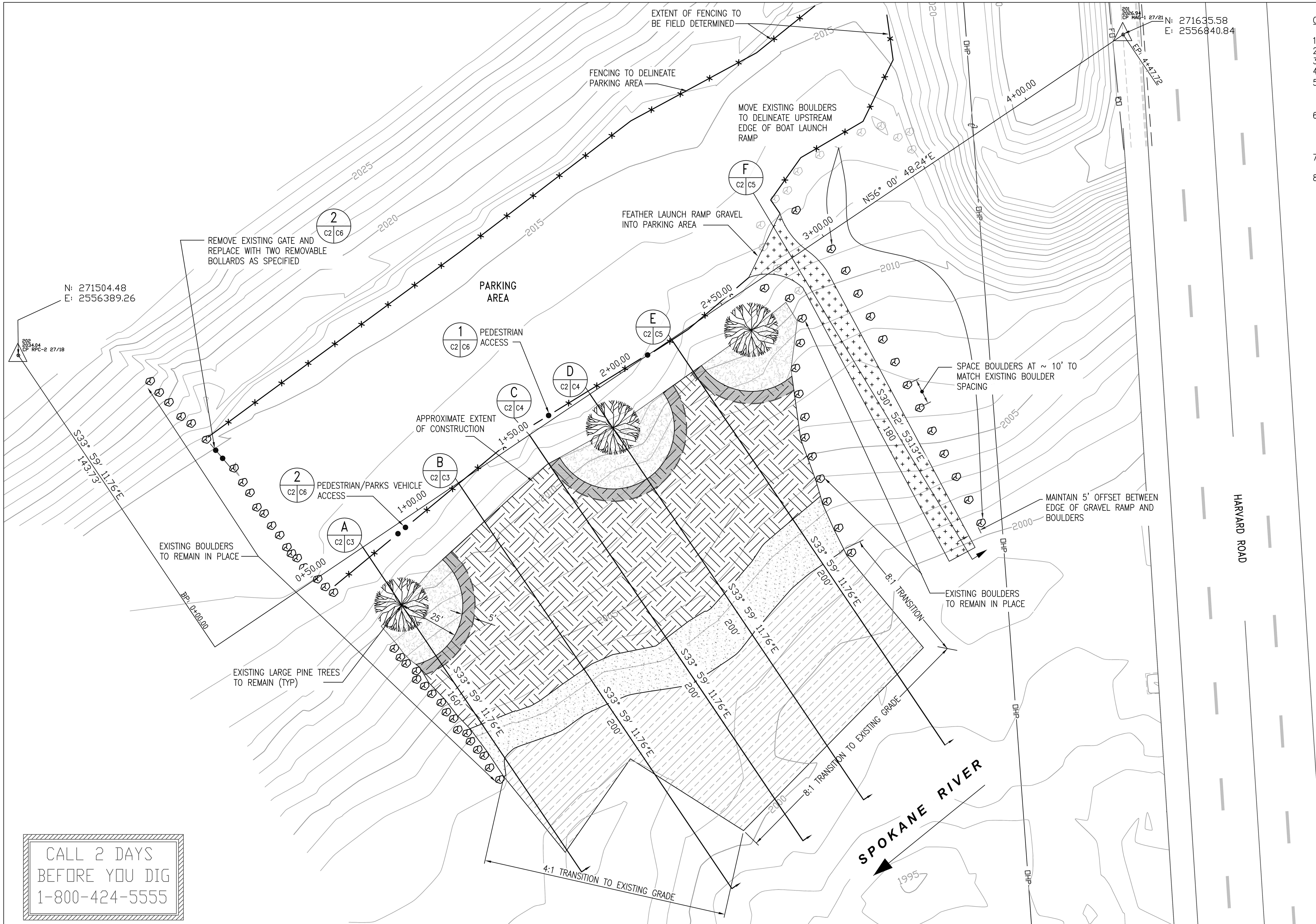
Date Of Issue:	March 2008
Designed By:	ACS
Drawn By:	ACS
Checked By:	SMF
Approved By:	

SPOKANE RIVER METALS SITES
HARVARD ROAD NORTH RECREATIONAL AREA
REMEDIAL ACTION
SPOKANE COUNTY, WASHINGTON

SITE AREA
AND
ACCESS LOCATION
90% DESIGN SUBMITTAL

Drawing No.
C1

Project No.
501C



CONSTRUCTION NOTES

1. Project work to be conducted during low flow period.
2. Material will not be placed in water.
3. Site will be closed to the public during construction.
4. Existing gravel parking area will be used for staging.
5. Excavation within buffer area around pine trees (as delineated) to be performed by hand. (Additional measures to protect pines may be necessary).
6. Transition zone is from 1-foot deep excavation on upland edge to 2-foot cap on waterward edge. Total thickness of clean backfill/cap to be 1-foot throughout.
7. Boat launch to be constructed of 6-12 inches of chipped rock.
8. Extent of cap and boat launch toward river to be field determined.

LEGEND

- GRAVEL LAUNCH AREA
- TREE PROTECTION ZONE
- 1-FOOT EXCAVATION AND BACKFILL ZONE
- BACKFILL TO CAP TRANSITION ZONE
- 1-FOOT SAND AND GRAVEL CAP ZONE
- 2000 — INDEX CONTOUR
- STATE PARKS FENCING
- BOLLARD
- PROPOSED BOULDER PLACEMENT
- EXISTING BOULDER PLACEMENT
- TREE
- OR — POWER POLE
- OHP — POWER LINE (OVERHEAD POWER)
- FO — FIBER OPTIC LINE

N

0 10 20 40 60 80
Scale in Feet

CALL 2 DAYS BEFORE YOU DIG 1-800-424-5555

REV.	DATE	DESCRIPTION	DES BY	DWN BY	CHK BY	APP BY
1	2/27/2008	90% SUBMITTAL COMMENTS ADDRESSED	ACS	SHC	SMF	SMF
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RIDOLFI Inc.

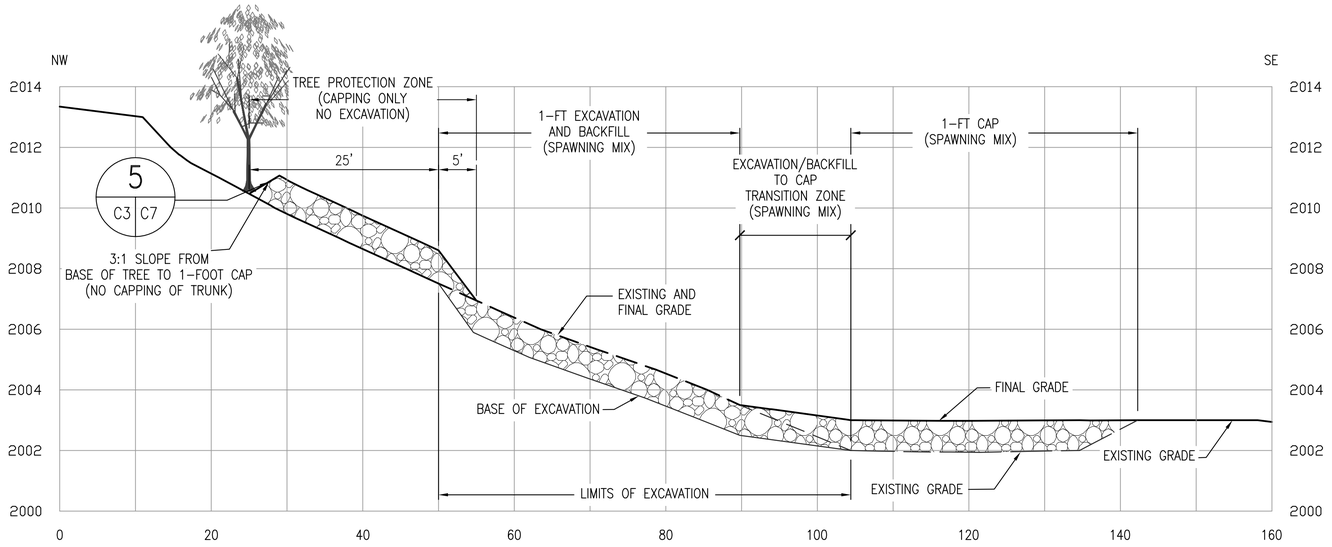
Date Of Issue:	March 2008
Designed By:	ACS
Drawn By:	ACS
Checked By:	SMF
Approved By:	

SPOKANE RIVER METALS SITES
HARVARD ROAD NORTH RECREATIONAL AREA
REMEDIAL ACTION
SPOKANE COUNTY, WASHINGTON

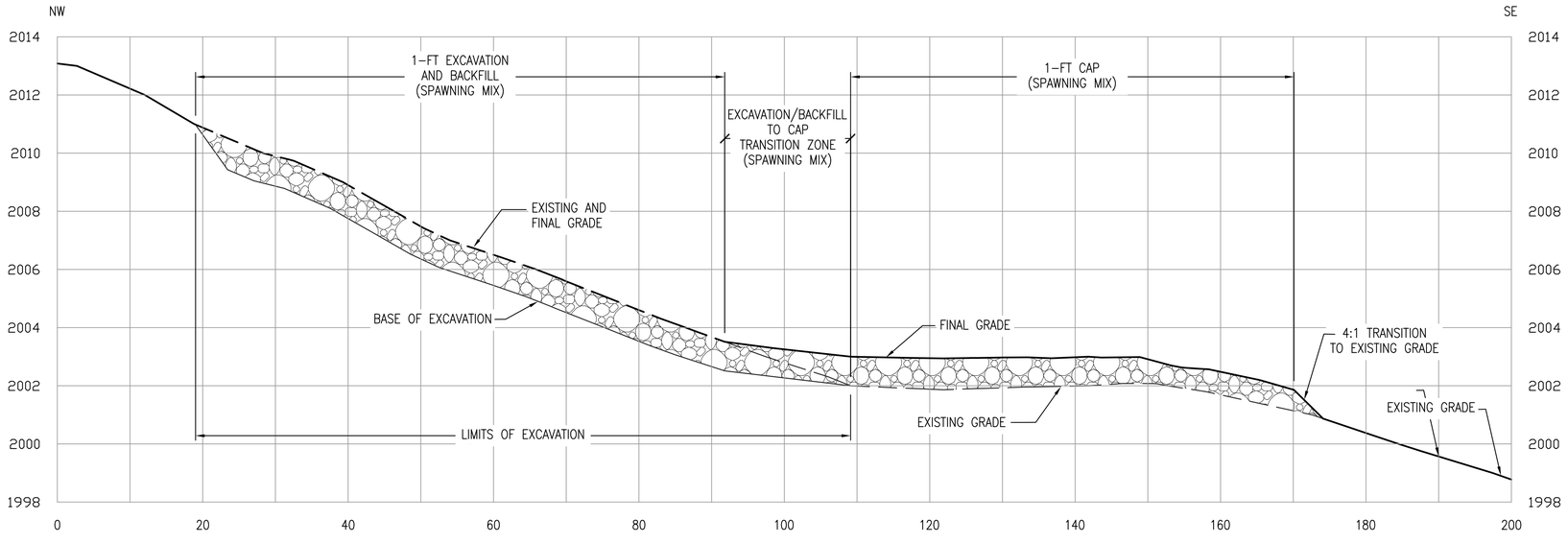
CAPPING PLAN
90% DESIGN SUBMITTAL

Drawing No. C2

Project No. 501C



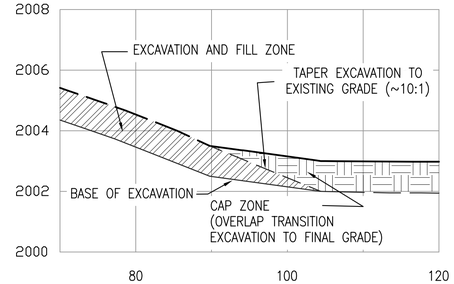
A STATION 0+73
C2 C3



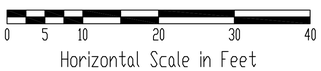
B STATION 1+20
C2 C3

LEGEND

- SPAWNING MIX MATERIAL
- EXISTING GRADE
- EXISTING AND FINAL GRADE
- FINAL GRADE
- BASE OF EXCAVATION



TYPICAL TRANSITION ZONE
DETAIL



Horizontal Scale in Feet

Vertical Scale in Feet

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RIDOLFI Inc.

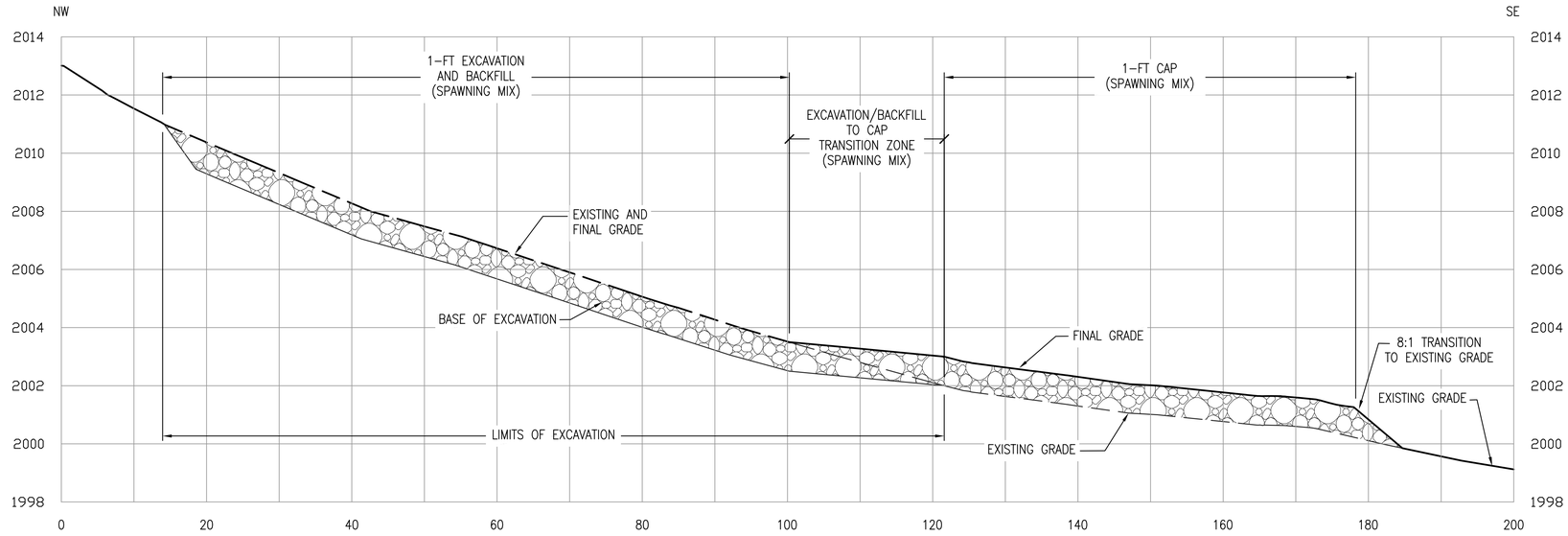
Date Of Issue:	March 2008
Designed By:	ACS
Drawn By:	ACS
Checked By:	SMF
Approved By:	

SPOKANE RIVER METALS SITES
HARVARD ROAD NORTH RECREATIONAL AREA
REMEDIAL ACTION
SPOKANE COUNTY, WASHINGTON

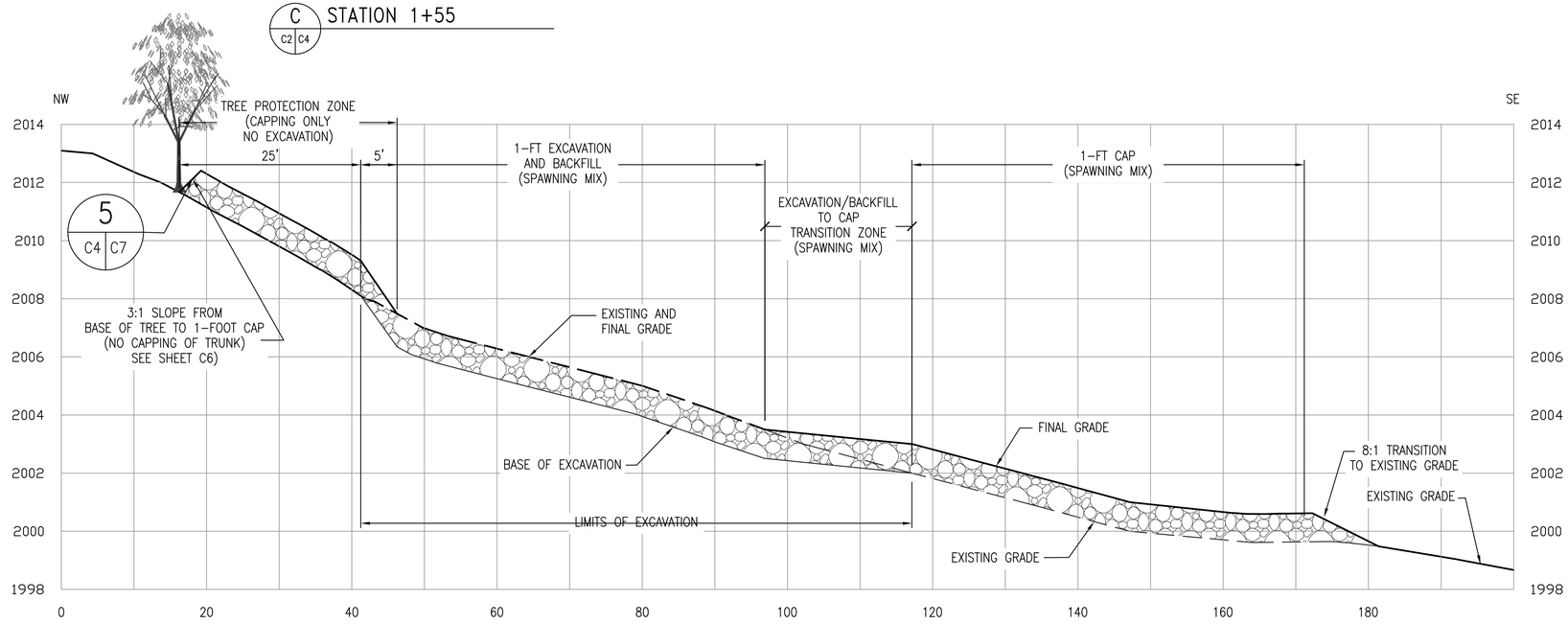
CROSS SECTIONS
90% DESIGN SUBMITTAL

Drawing No.
C3

Project No.
501C



C STATION 1+55
C2 | C4



D STATION 1+85
C2 | C4

LEGEND

- SPAWNING MIX MATERIAL
- EXISTING GRADE
- EXISTING AND FINAL GRADE
- FINAL GRADE
- BASE OF EXCAVATION

0 5 10 20 30 40
Horizontal Scale in Feet

0 1 2 4 8 16
Vertical Scale in Feet

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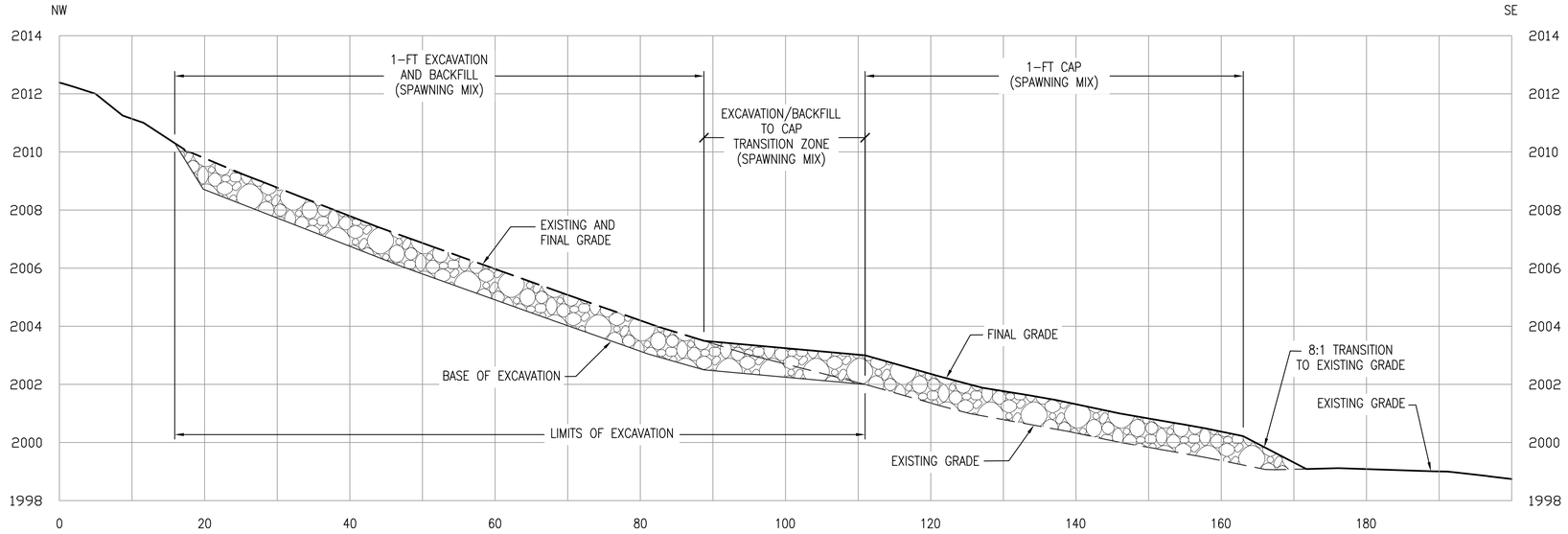
Drawing No.
C4

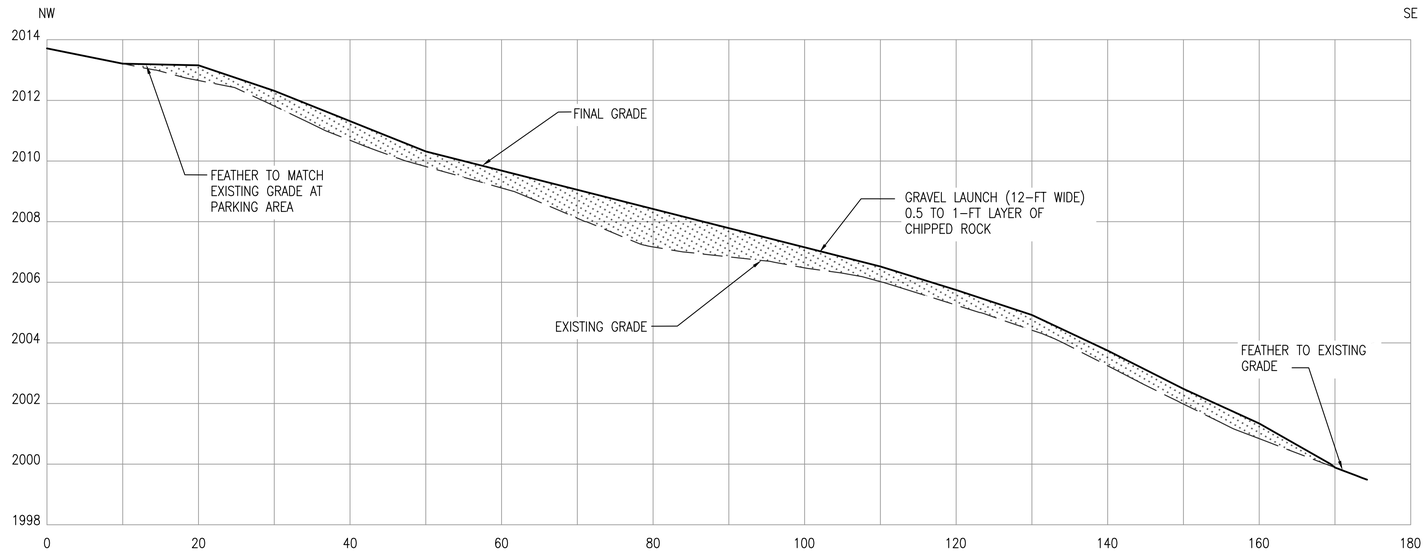
Project No.
501C



E / C2 C5 STATION 2+25

LEGEND

- SPAWNING MIX MATERIAL
- 1 1/4"–MINUS CHIPPED ROCK
- EXISTING GRADE
- EXISTING AND FINAL GRADE
- FINAL GRADE
- BASE OF EXCAVATION



D / C2 C5 STATION 2+84

0 5 10 20 30 40
Horizontal Scale in Feet

0 1 2 4 8 16
Vertical Scale in Feet

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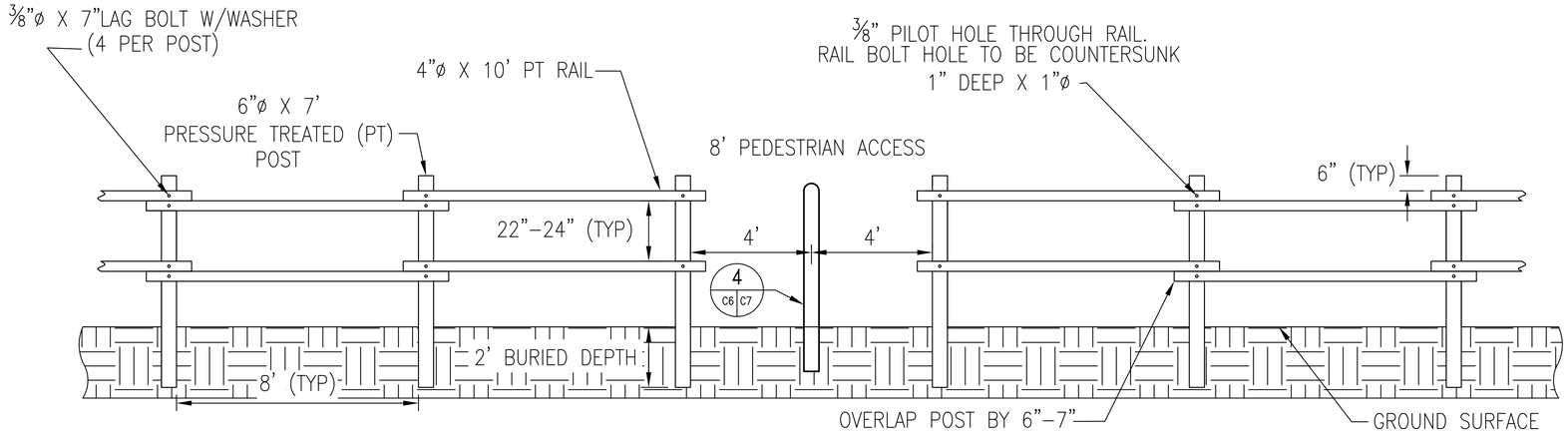
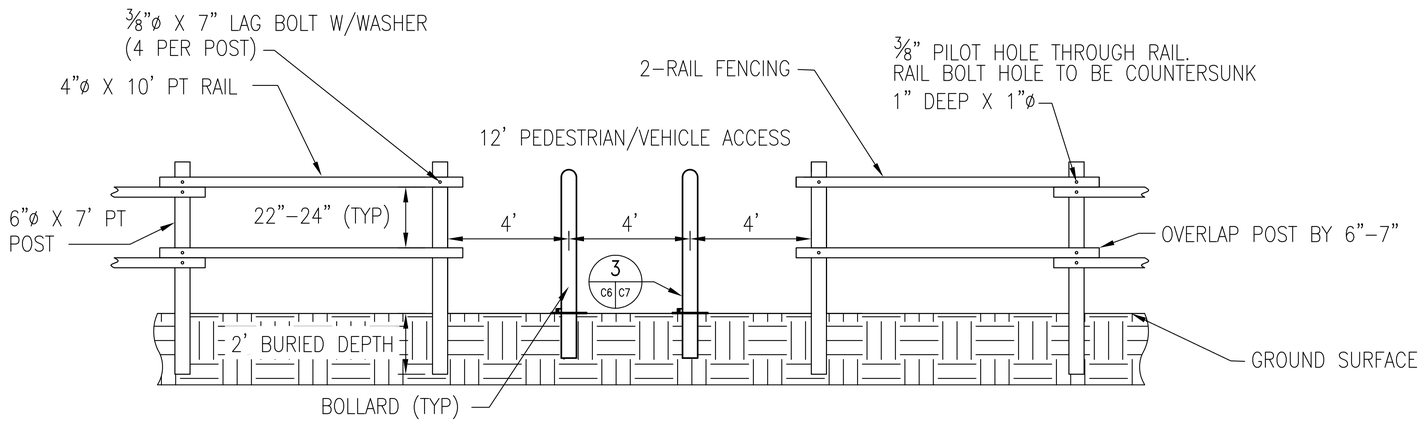
C5

Project No.
501C



1 C2 C6 2-RAIL FENCING AND PEDESTRIAN ACCESS (TYP)
NTS



2 C2 C6 PEDESTRIAN/STATE PARK VEHICLE ACCESS (TYP)
NTS

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CONSTRUCTION DETAILS
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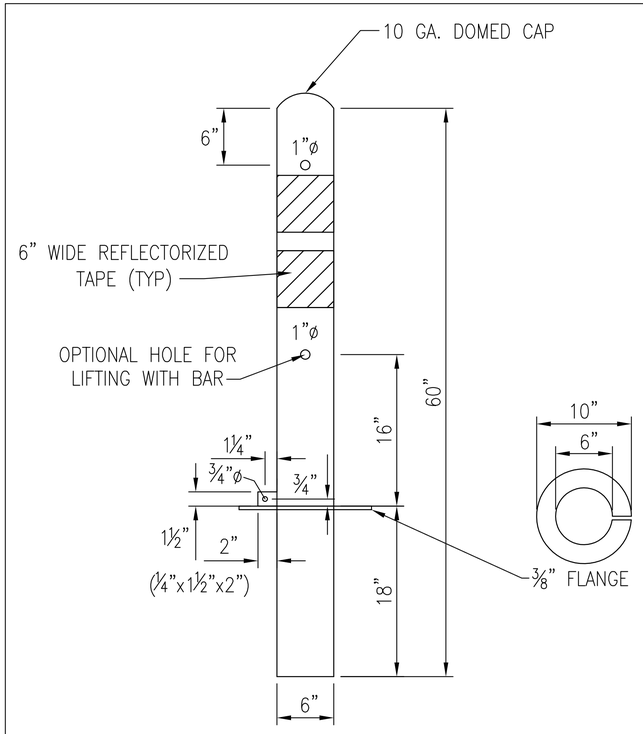
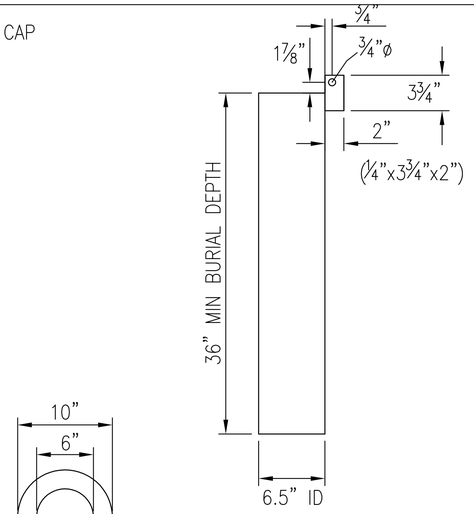
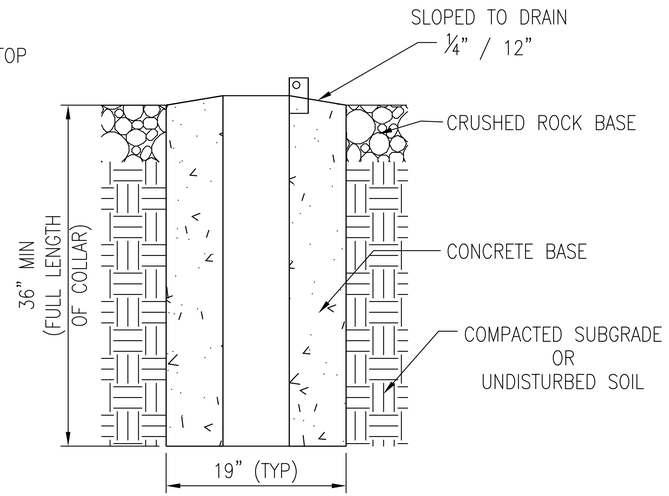


REMOVABLE BOLLARD TOP

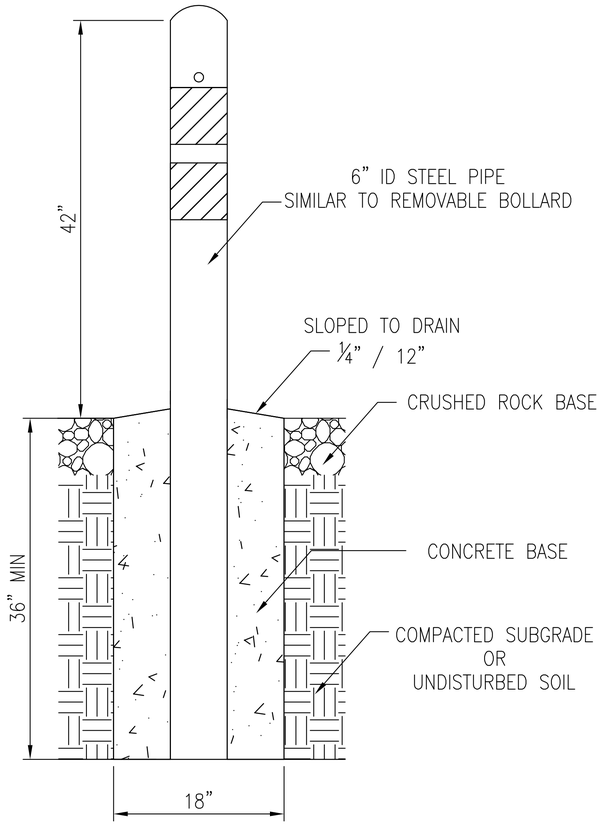


BOLLARD BASE
6½" ID STEEL PIPE SLEEVE TO ACCEPT BOLLARD

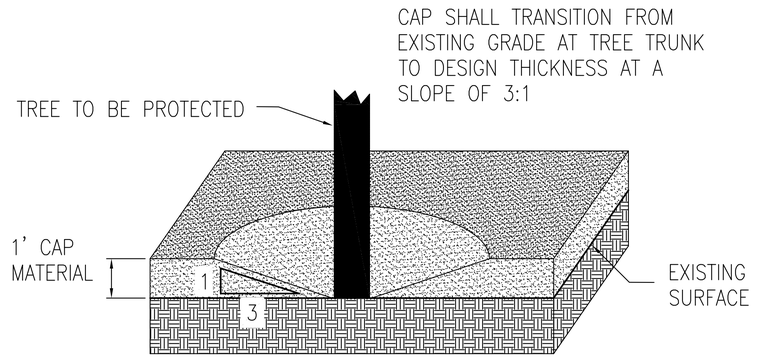


BOLLARD BASE FOUNDATION
(SEE SECTION 03300 FOR CONCRETE SPECIFICATION)

3 C6 C7 REMOVABLE BOLLARD (TYP)
NTS



4 C6 C7 PERMANENT BOLLARD (TYP)
NTS



5 C C7 TREE PROTECTION CAPPING (TYP)
NTS

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Drawing No.
C7

Project No.
501C