



# Ballard Diving and Salvage

www.ballarddiving.com

1525 NW Ballard Way Seattle, WA 98107  
 VOICE 206-782-6750 FAX 206-782-8944 EMAIL info@ballarddivers.com

## Underwater Services

Pipeline, outfall and intake construction

Internal and external joint repairs (custom fabrication)

Diver and Remotely Operated Vehicle long tunnel and pipe penetrations

Installation and pressure testing of mechanical joints

Pipeline and outfall diffuser ports and hot taps

Repair or replace damaged pipe sections

Removal of internal debris and sediment

Underwater concrete placement and demolition

Installation and repair of sacrificial anodes

Anchoring of existing pipelines

Pipeline pigging/blanking



## Case Study: Outfall Repair



ABOVE: DIVERS INSTALLING MANHOLE ACCESS RISER (right in green) AS FINAL STAGE TO JOINT REPAIR AND PIPE ACCESS POINT

REBAR CAGE SET TO STRENGTHEN MASS CONCRETE POUR AROUND EXTERNAL JOINT OFFSET

RIGHT: ROV RECOVERED AFTER DEPLOYMENT INTO THE OUTFALL SYSTEM (1750 ft. Penetration) TO PERFORM DIGITAL VIDEO AND DUAL IMAGING SONAR SURVEYS OF SEDIMENT PROFILE IN THE PIPE AND THE STRUCTURAL CONDITION OF EACH PIPE JOINT. (Accuracy +/- 1/8 inch)



ABOVE: CUSTOM FABRICATED INTERNAL PIPE REPAIR BAND

THIS CAD DRAWING IS A DETAIL OF A SANITARY SEWER OUTFALL JOINT REPAIR PERFORMED BY BALLARD DIVING AND SALVAGE PERSONNEL. THIS REPAIR WAS CONDUCTED WITH ZERO DIVER VISIBILITY, WAS A COMPLETE SUCCESS AND WAS CONSTRUCTED WITHIN VERY TIGHT TOLERANCES.

