



October 8, 2009

Mike Porter
California Regional Water Quality Control Board San Diego Region
9174 Sky Park Court Suite 100
San Diego, California 92123-4340

Subject: Gregory Canyon Bridge Project
Pala, California
Reference No. 227954: mporter

Dear Mr. Porter:

The San Diego Regional Water Quality Control Board (RWQCB) has indicated in a letter sent to Gregory Canyon, Ltd. LLC on September 28, 2009 that the Application For Clean Water Act (CWA)§401 Water Quality Certification for the Gregory Canyon Bridge Project (file number 09C-073), which was received by the RWQCB on September 17, 2009 was incomplete pursuant to 23 CCR§3856. The RWQCB requested additional information for eight items.

A revised 401 Certification Application addressing these eight items was transmitted to the RWQCB on September 30, 2009. A phone conversation held between Bill Magdych (URS), Ed Othmer (URS), Brian Felten (URS), and Mike Porter (RWQCB) on October 7, 2009 indicated that information describing the type of drilling to be conducted during support pier construction and associated Best Management Practices (BMPs) were insufficient. A more detailed description of construction and water quality protection methods to be employed were requested by Mike Porter.

This letter report is being transmitted to supply information necessary to fulfill the requirements of a complete CWA§401 Certification application.

BOREHOLE DRILLING METHODS

Typical drilling procedures for cast-in-drilled hole (CIDH) piles would be as follows:

- Drill the specified diameter shaft at each pile location to the specified tip elevation utilizing full diameter conventional flight and rock augers using temporary heavy wall steel surface casings to stabilize the upper portions of the shaft where sloughing or caving conditions are encountered. Casings will be over sized and set in single, double, or triple stages, telescoped to a depth to seat the casing in component material and seal the shaft from watering and caving.
- Thoroughly clean away, any spoil or loose material from the top of the shaft.
- Thoroughly machine clean the shaft tip.
- After shaft acceptance, a permanent corrugated metal pipe will be placed followed by the reinforcing steel and concrete.

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If groundwater is encountered temporary casings will be used to stop water seepage. If temporary casings are not effective the following methods may be employed in an attempt to resolve seepage issues.

- Drill to tip elevation using conventional soil and rock tooling. Use a spin bottom “clean out bucket” at the bottom of the shaft to clean the base of the shaft before setting the rebar cage and pouring the concrete.
- Drill shaft to tip elevation. De-water the hole with the use of a submersible pump. This is done before the rebar cage is set and could be used after the reinforcing cage is set in the hole and just prior to the pouring of concrete.
- If water seepage is excessive, a grout plug may be used. The hole will be oversized, typically three to five feet below the bottom of the lower temporary casing. An oversized permanent corrugated metal pipe will then be placed in the hole and secured to the temporary casing. A 3-sack sand slurry grout would be poured where groundwater and/or caving materials persist and extending up into the permanent casing. Once the grout layer is poured and sets up (usually the next day), drilling will commence through the grout layer and continue the shafting to the tip. If more groundwater and/or caving are encountered, more grout plugs will be poured until the shaft walls cease sloughing, groundwater seepage is stopped, or the design tip elevation is reached. In this case, the CMP casing needs to be oversized to allow the drill tools and spoils to pass through without damaging the corrugated metal pipe which would break the water seal.

CONCRETE POURING METHODS

Concrete placed in “dry” shafts will be chute placed or boom pumped at the center of the rebar cage. This method will ensure that the concrete is not allowed to strike the reinforcement during its unobstructed fall to the bottom of the shaft. The depth of the shaft is measured before concrete placement begins and the depth of the rising concrete is monitored with the use of a weighted tape measure. If concrete placement cannot be done without striking the rebar supports, concrete will be placed using adjustable length tubes so concrete does not fall from greater than eight feet.

In the event that the concrete is poured under slurry (wet method) it will be done by the use of a concrete pump, feeding a single 10 inch diameter gravity flow tremie pipe or 5 inch diameter concrete pump tube. This tube will be marked so that it’s placement during the concrete pour can be tracked. Prior to concrete placement, the tremie pipe will be lowered to within 6 inches from the bottom of the shaft, and a “rabbit”, or flexible plug, will be inserted ahead of the concrete in the initial placement. Pumping will continue as the hopper and tremie are raised, maintaining a minimum of 5 to 10 feet of concrete head on the bottom of the tremie pipe. Discharge pipe embedment will be continuously monitored, with the use of a weighted tape, measuring from the surface to the top of the rising concrete and comparing the measurement to the length of pipe in the shaft. The tremie pipe will be marked along its entire length to enable its location to be monitored during the concrete pour. Concrete pour quantities can be tracked using “pour log” forms.

A diagram depicting these methods has been provided as Attachment A.

MATERIAL DISPOSAL

Drilling spoils and excess concrete will be removed from the site and disposed of in an upland area. Drilling slurry will be broken down per the manufacturer recommendations and the engineer's approval. If de-watering methods are required the excess water will not be discharged into the water body. Removed water will be hauled off or pumped to an upland area where it may be used for dust control watering of other project areas. The dismantled drilling slurry may also be used for dust control watering.

BMP DESCRIPTIONS

The following construction BMPs will be employed during support pier construction. BMP fact sheets are provided in Attachment Q of the Gregory Canyon Landfill Storm Water Pollution Prevention Plane (SWPPP) (URS 2008). A BMP map has been provided as Attachment B of this letter report.

- **EC-1 Scheduling** – (Construction will be conducted outside of the rainy season between May 31 and October 1.)
- **EC-2 Preservation of Existing Vegetation** – (Vegetation located in the bridge access/work area boundary [Attachment A] will not be permanently removed and will be permitted to naturally revegetate upon completion of support pier construction.)
- **NS-5 Clear Water Diversion** – (Coffer dams will not be required because higher flows which would necessitate this technology are not anticipated during the summer months. Gravel bags, gravel bags used in conjunction with an impermeable membrane, or similar technologies will be used to divert water from the work area. Sandbags will not be used.)
- **NS-8 Vehicle and Equipment Cleaning** - (Vehicle and equipment washing will be restricted to designated areas outside of the river channel and wetland areas)
- **NS-9 Vehicle and Equipment Fueling** – (Fueling will be conducted off site whenever possible. Fueling of vehicles and equipment that must remain onsite will be conducted over drip pans or absorbent pads.)
- **NS-10 Vehicle and Equipment Maintenance** – (Vehicle and equipment maintenance will be conducted off site whenever possible. When offsite maintenance is not possible technologies and practices described in the BMP fact sheet will be employed.)
- **NS-14 Material Over Water** – (It is not anticipated that construction activities will be conducted from barges, boats, or temporary construction pads. The NS-14 BMP does however provide methods to protect against impacts to water quality related to various types of construction materials.)
- **WM-3 Stockpile Management** – (Drilling spoils will be stored offsite in an upland area where appropriate stockpile management technologies and practices will be implemented.)

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- **WM-4 Spill Prevention and Control** – (Chemical or hazardous materials will not be stored on site. Appropriate spill prevention and control measures will however be applied to protect against spills from vehicles and equipment that contain fuel, oil, and hydraulic fluids.)
- **WM-8 Concrete Waste Management** – (Washout will be conducted offsite.)

OTHER WATER QUALITY PROTECTION METHODS

Vehicles and equipment will be removed from the project site after completion of work on a daily basis for the duration of the project. Vehicles and equipment will be stored at appropriate upland lay down areas. In the event that drilling of a single bore hole takes longer than a single day, which is anticipated, the drill rig will be required to remain over the bore hole. Appropriate BMPs (i.e. drip pans, absorbent pads, etc.) will be employed to prevent potential contamination from drill rig equipment.

Sincerely,

URS CORPORATION



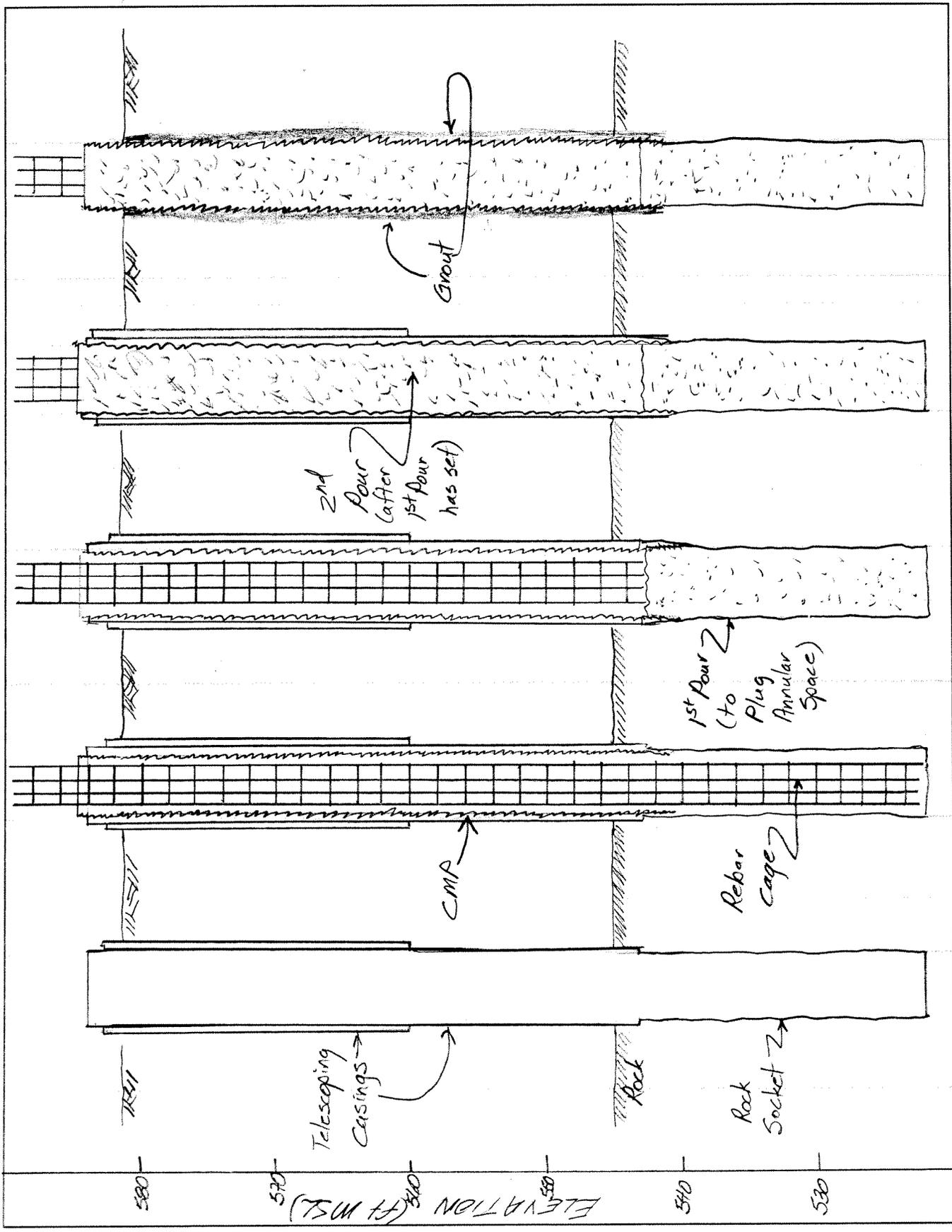
Bill Magdych
Director of Environmental Permitting



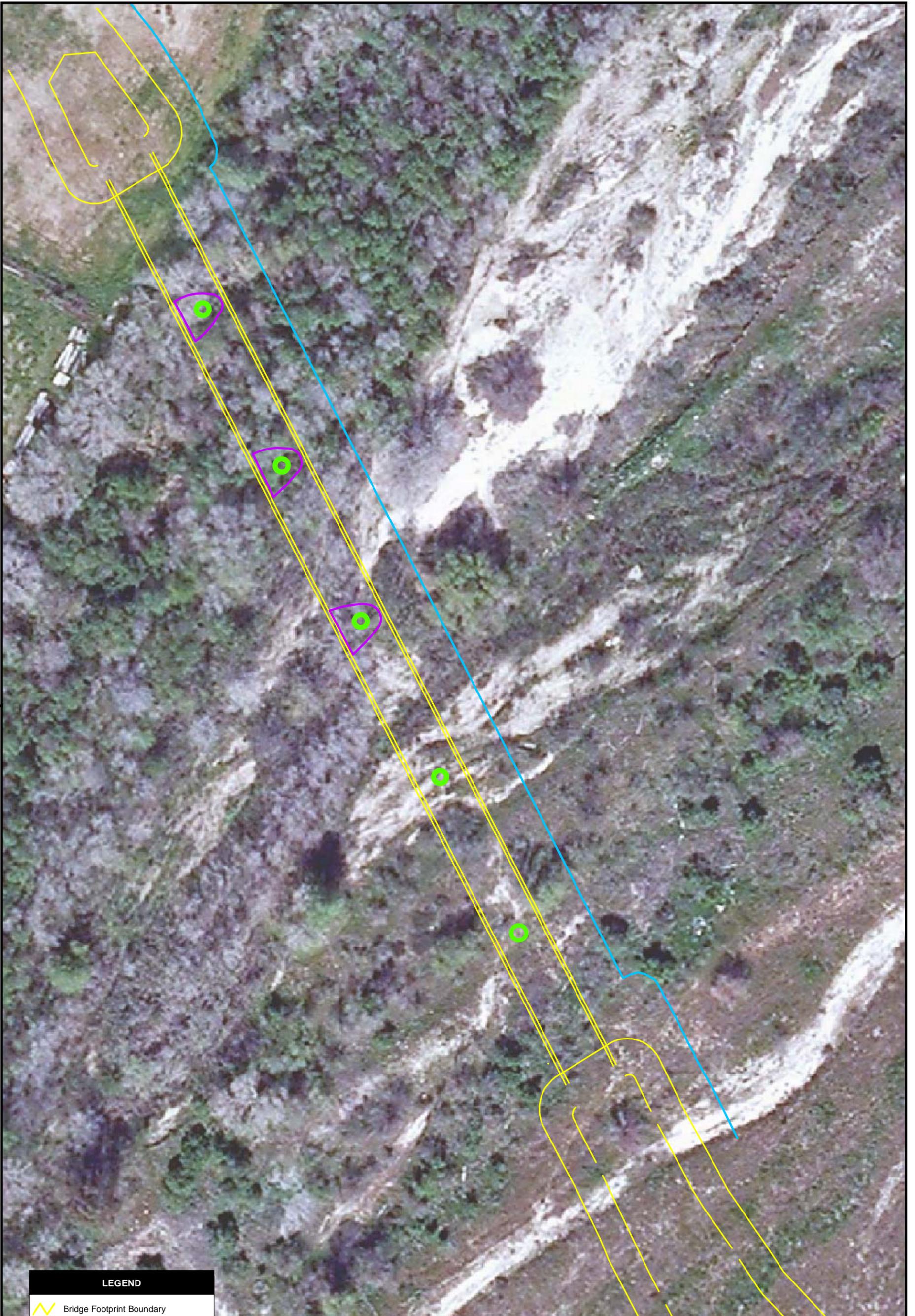
Brian Felten
Ecologist

Attachments:

- Attachment A – Bridge Pier Boring Diagram
- Attachment B – BMP Map



- ① Drill & Case
- ② CMP & Rebar
- ③ Pour & Plug
- ④ Pour to Cutoff
- ⑤ Grout Annulus & Pull Casing

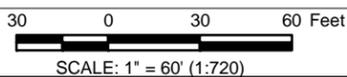


LEGEND	
	Bridge Footprint Boundary
	Bridge Access/Work Area Boundary
	Bridge Piers
	Clearwater Diversion BMP



SOURCES: LENSKA (2009 Aerial Photograph),
 Nolte & Assoc. (bridge grading 2005);
 URS (wetland delineation August 2009).

**CLEARWATER DIVERSION BMP
 GREGORY CANYON LLC**



CHECKED BY CM	DATE: 10-07-09	FIG. NO:
PM: BM	PROJ. NO: 27654025.00020	1