CONTRUCTION WORK PLAN

Supplemental DNAPL Extraction Well

General Electric Company
Fort Edward, NewYork

December 2006

O'BRIEN & GERE

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O'Brien & Gere

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1. INTRODUCTION

This Work Plan has been developed in accordance with the November 6, 2006 Supplemental Investigation Summary Report, the June 2004 Construction Work Plan, the June 2003 (Transition Zone Ground Water Collection) and December 2003 (DNAPL Collection System) Remedial Design Reports (RDRs) for the OU-3 Remedial Design - DNAPL Collection System, all prepared by O'Brien & Gere Engineers, Inc., and the December 7, 2006 NYSDEC response letter to the November 2006 Supplemental DNAPL Extraction Well Construction Work Plan (Rev 0)

This Work Plan has been developed to describe construction procedures to be implemented during installation of the supplemental DNAPL remedial system. If necessary, measures beyond those described in this Work Plan will be utilized to meet the intent of the design and protect workers and the surrounding community. The construction activities for the supplemental vertical DNAPL recovery well will be performed in accordance with the aforementioned documents submitted to NYSDEC and revisions described in this Work Plan. O'Brien & Gere has been contracted by GE to perform the following site activities:

- Perform site surveying to establish control points, locate utilities, locate a new vertical recovery well, and develop as-built survey drawings.
- Perform site preparation activities to establish work zones and stockpile areas, setup temporary facilities, and install drilling spoils handling and dewatering facilities.
- Design and install one vertical DNAPL recovery well (ORW-3).
- Install new DNAPL pumping and conveyance systems from the new vertical recovery well. The conveyance piping will direct recovered DNAPL to a new collection building to be installed directly over the new vertical recovery well.
- Install instrumentation and controls to monitor system operations, and to allow for automatic operation of the DNAPL recovery system.
- Perform work activities in accordance with the site-specific Job Safety Analysis (JSA) to the Health and Safety Plan.

- Perform community air monitoring in accordance with the NYSDOH Generic Community Air Monitoring Plan (CAMP) during ground invasive activities where DNAPL exposure is anticipated.
- Conduct weekly construction progress meetings to review completed and/or ongoing construction activities, planned construction activities, health and safety activities, action items, and schedule.

- Coordinate activities to minimize disturbance of facility operations.
- Collect drill cuttings and development water for on site pre-treatment, amendment, and/or off-site disposal.
- Restore the work areas to pre-construction condition.

2. KEY PERSONNEL

Below is a table summarizing key personnel and their responsibilities for the site work and waste handling activities during installation of the DNAPL remedial system at the GE Fort Edward facility.

CONTACT	CONTACT INFORMATION	RESPONSIBILITIES
GE		
Site Manager – David L. West	Office: 518-746-5560	1. Confirming site utility locations. 2. Signing waste manifest/bills of lading. 3. Coordinating disposal w/ on site Contractor reps. 4. Overall facility environmental health & safety responsibilities.
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Project Manager – Paul Mazurkiewicz, PE	Office: 315-437-6400 x2826 Cell: 315-254-4710	1. Overall responsibility for prime contract and subcontract administration. 2. Overall responsibility for project

CONTACT	CONTACT INFORMATION	RESPONSIBILITIES
		health and safety and quality control. 3. Contractor contact for Owner, Engineer, & regulatory agencies. 4. Attend progress meetings, as needed. 5. Coordinate activities, deliveries with Foreman. 6. Coordinate changes to design with Engineer, Owner, regulatory agency(s).
Engineering Officer –James Heckathorne, P.E.	Office: 315-437-6100 x2277	1. Overall responsibility for design. 2. Developing final certification report.
Managing Geologist – Ralph Morse, CPG	Office: 518-452-9392 x 12	1. Overall responsibility for installation and development of recovery well. 2. Coordinate utility locations and well location.
Site Foreman – John Baker	Cell: 315-440-9514	1. Coordinate field activities with subcontractors and O'Brien & Gere field personnel. 2. Responsible for construction quality control. 3. Coordinate field activities with on site H&S monitoring personnel. 4. Measure daily quantities. 5. Maintain drill spoils handling and dewatering system(s), as needed. 6. Attend progress meetings. 7. Coordinate site security requirements with Owner.
Health and Safety Monitor – John Baker (during site work)		1. Oversee site activities to confirm work performed according to site-specific HASP and GE plant policies. 2. Personnel toolbox safety meeting and prework safety briefings. 3. Maintain daily records of work activities. 4. Define exclusion & support zones for work activities, coordinate with Owner rep. 5. Responsible for personnel and community air monitoring. Maintain

CONTACT	CONTACT INFORMATION	RESPONSIBILITIES
		daily weather data for site.

As indicated on the above table, the Project Manager will be responsible for the overall quality control on the project with the Site Foreman acting as the on site quality control representative. The Project Manager will review all work and confirm that the work is performed in accordance with the June 2003 and December 2003 RDRs previously approved by NYSDEC.

3. SITE WORK

A. MOBILIZATION, SITE PREPARATION AND TEMPORARY FACILITIES

O'Brien & Gere will mobilize personnel and equipment to the Fort Edward facility and setup temporary facilities. As part of the mobilization/site preparation activities, O'Brien & Gere will perform the following:

- Locate the supplemental vertical well, ORW-3, based on the location of the soil borings and observation well installed during the supplemental OU-3 site investigations. Figure 1 represents the location of ORW-3 and the collection system.
- All utilities will be marked and necessary contacts made regarding working in the GE Ft. Edward facility parking lot. Anticipated daily activities will be coordinated with designated GE personnel and work areas will be clearly marked daily.
- Equipment and material lay down and stockpile areas will be established. These areas will be selected to minimize interfering with facility activities and will be approved by GE.
- Erosion controls will be installed, if needed, around the vertical well location prior to construction of the collection building foundation. Catch basins/storm sewers which are in the work zone will have temporary erosion controls installed to prevent sediment from entering the basin.
- Setup personnel air monitoring equipment for drilling activities. It is anticipated that the personnel air monitoring activities will be performed during drilling and well

development activities. Monitoring will be conducted at the well location for personnel protection in accordance with site specific safety procedures.

- Setup temporary PCB air monitoring/sampling units and wind direction indicator for collection of air samples during intrusive activities where DNAPL exposure is anticipated.
- Temporary collection and pretreatment measures will be installed for the well development water/product. Drill cuttings will be collected, containerized, dewatered and/or solidified (if necessary), and disposed of by GE.

B. DNAPL RECOVERY WELL

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The proposed new vertical DNAPL recovery well, ORW-3, will be installed within the shallow unconsolidated sand & gravel unit. The well will be constructed using a length of 4-inch ID PVC riser pipe connected to a 10-foot length of 0.020-inch slot PVC well screen placed within the sand & gravel unit. The approximate depth of the well screen at well ORW-3 will be 29.5 feet below grade as shown on Figure 2.

Installation of the recovery well will be performed by advancing a 6-inch diameter borehole through the glaciodeltaic sand and gravel unit to the top of the low permeability glaciolacustrine silt and clay unit utilizing flush joint drive casing and/or fluid rotary drilling techniques. After setting the well, sand will be introduced gradually inside the casing filling the 1-inch annular space between the screen and the borehole adjacent to the screen. The filter pack will consist of clean, graded, Morie #1 silica sand and will extend two to three feet above the top of the screened interval. A bentonite pellet seal will be placed above the sand pack to form a seal at least 2 feet thick. A thick cement-bentonite grout will be extended from the top of the bentonite pellet seal to the ground surface. The grout material will consist of Type I Portland cement mixed with a granular bentonite. The grout mixture will be prepared in accordance with ASTM D 5092-90, such that approximately 3 to 5 pounds of bentonite is mixed with 6 to 7 gallons of water per 94-pound sack of cement. The grout will then be introduced via a tremie pipe lowered to just above the top of the bentonite pellet seal. As the grout is pumped into the borehole, the tremie pipe will be removed in sections so that the grout is pumped into the

borehole at a level below the top of the grout seal as it is emplaced. The recovery well will subsequently be developed to confirm DNAPL recovery and remove residuals prior to installation of the permanent recovery system components. Construction details of the recovery well are described below:

- A licensed well driller familiar with similar environmental well installations, will be subcontracted to install the vertical recovery well. Based on GE requirements and the site-specific HASP, barricades and/or safety fence/tape will be placed around the work zone to prevent unauthorized personnel entry in or around work area. O'Brien & Gere will subcontract Parratt-Wolff for the well drilling.

- A geologist from O'Brien & Gere will be on site to oversee the well drilling activities to confirm techniques, screen and well depths, and document that the well is installed in accordance with the requirement of the RDR. Additionally, O'Brien & Gere personnel will be on site to monitor the drilling/well installation and perform health and safety activities.

- The well development water and DNAPL will be collected for either on site treatment or off site disposal. Any water collected will be ultimately treated at the on site water treatment facility, with pretreatment equipment available to reduce suspended solids from the water prior to introduction to the facility treatment system. DNAPL recovered during well development activities will be placed in DOT-approved containers for characterization and off site disposal by GE.

5. DNAPL COLLECTION SYSTEM

As indicated in Figure 2, the collection building will be installed over ORW-3. The DNAPL Remedial System collection activities include the following:

- The ORW-3 DNAPL collection system will be housed in a 10-ft x 10-ft x 8-ft high pre-engineered building previously utilized to house the ORW-2 recovery system.

Existing utilities will be disconnected and the building will be relocated to its new location. A new concrete building foundation and floor slab will be installed over ORW-3. Design drawings previously utilized for installation of the ORW-2 building (Attachment 2 - Dunn Geoscience Engineering drawings) will be utilized for the concrete construction.

- Equipment for the DNAPL pumping and collection system instrumentation and controls, power feeds, and collection drums will be installed in the collection building. Figure 3 provides a schematic of the proposed recovery well system components. The equipment installed in the new collection building includes:

  - A single-stage air compressor will supply the air to the product pumps in the new recovery well.

  - The controller for the product pumps is designed to control the pump fill and discharge cycles. The controller will be connected to the high level switch installed at the collection drum to prevent overfilling.

    - The process piping for the DNAPL pumping and collection will include the following:
      - DNAPL conveyance piping/tubing – Nylon tubing will be installed connecting the pneumatic pump directly to the collection drum. The specified product recovery system includes a ½-inch diameter product line and 3/8-inch air supply line for the pump. The product and air supply tubing bundle will be supplied to run from the drum installed in the collection building to the product recovery pump without joints.

      - The required electric service will either be relocated from the ORW-2 building or a trench will be installed to bring the required service from the main building. If the trench is required, electrical conduit will be installed approximately 24-inches below existing grade. The conduits

will be bedded with off site borrow material, with six inches of bedding material above and below the conduit.

If the trench installation is needed, care shall be taken to delineate the work area with temporary fencing and/or barricades to prevent authorized personnel entry into the work zone. Additionally, work activities shall be performed to minimize the amount of trench open each day.

- Installation of a product recovery pump approximately 6" above the bottom of the vertical recovery well, ORW-3. A QED pneumatic displacement, product recovery pump will be connected to the nylon tubing bundle (product and air lines) and stainless steel cable used for removing the pump for maintenance. A conductivity sensor will be installed above the intake of recovery well pump to detect the presence of product in the well and actuate the product pump controller.

6. SOLID AND LIQUID WASTE MANAGEMENT

It is anticipated that solid (drill cuttings) and liquid (water and DNAPL) waste materials will be generated during the OU-3 DNAPL Collection System construction activities. O'Brien & Gere will be responsible for collecting and/or containing the wastes generated during the activities, with GE being responsible for the on site treatment and/or off site disposal of the materials.

The sources of construction related liquids that are to be collected and managed in accordance with this Section are as follows:

- Well development water and DNAPL –The liquids generated during these activities will be containerized (temporary tank) in the vicinity of the work area, pretreated and/or segregated if necessary, and subsequently introduced to the on-site water treatment facility. Temporary pretreatment may include separation of any free product, and/or filtration (bag filters) to remove high concentrations of suspended

solids. If utilized, any pretreatment system wastes will be containerized, characterized and disposed off site by GE.

- Personnel and equipment decontamination wash waters – Personnel and equipment will be decontaminated in a temporary decontamination area located on the concrete pad behind the on-site waste water treatment plant. Rinsewater will be collected and containerized for disposition or treatment by GE.

In areas where water is collected and/or temporarily containerized, temporary bermed staging areas will be established. Polyethylene sheeting (minimum 20-mil or equivalent) will be placed under containers, and berms (soil or hay bales covered with the poly) will be placed around the perimeter of the temporary staging area.

It is also anticipated that some solid wastes will be generated during the construction activities, including:

- Drill cuttings/drilling mud – this material will be containerized in the vicinity of the drilling area, away from highly trafficked areas, and the cuttings subsequently managed by GE.

- Asphalt and excavation spoils – asphalt removed during the construction activities will be containerized and disposed off site as construction debris. Excavation spoils from the new building concrete foundation will be either placed back in the excavation as backfill or containerized for proper management by GE.

7. HEALTH AND SAFETY

Attachment 1 to this Work Plan is a Job Safety Analysis (JSA) for the proposed site activities. The JSA for the site activities is an amendment to the December 2004 JSA and the September 2002 site-specific Health and Safety Plan for the OU-3 Foil Mill Remediation Activities.

O'Brien & Gere will perform the necessary air monitoring, personnel and work zone monitoring during intrusive activities.

Air monitoring for PCBs will be performed at upwind and downwind locations during ground intrusive activities where DNAPL is anticipated to be encountered. Specifically, the PCB monitoring/sampling shall be conducted during the boring portion of the well drilling where DNAPL will be encountered, approximately 1-2 days in duration. One sample location will be established upwind of the work zone and one immediately downwind of the work zone. Two additional PCB air samples will be collected along the downwind property boundary during the well boring installation. The air samples will be submitted to an ELAP-approved analytical laboratory for PCB analysis by USEPA Method 311.1. As it is anticipated that the boring installation will be completed prior to analytical results being available, 5-day turnaround of the results will be requested. The air sample data generated during the well drilling will be submitted to NYSDOH and NYSDEC upon receipt from the laboratory along with the sample locations and wind direction information.

8. SCHEDULE

The anticipated project schedule for the vertical DNAPL recovery well construction activities is attached as Attachment 3.

Attachments

ATTACHMENT 1

Job Safety Analysis

JSA Title:	OU-3 Well Enhancements	**Client Name:**	General Electric
Project Name:	Ft Edward OU-3 Well Enhancements	**Project Manager**	Paul Mazurkiewicz
Project Number:	34994	**Site Supervisor/SSHC**	John Baker
Project Location:	Ft Edward, NY	**Client Site Manager**	David L. West
Project Phone No.:			
Project Fax No.:		**Prepared By:**	Sean Wurster
Scope of Work covered by this JSA	Installation of one (1) new vertical DNAPL recovery well. (ORW-3). Mechanical and Electrical installations associated with new recovery well. Installation of a new concrete building foundation and floor slab for a 10-ft x 10-ft x 8-ft high pre-engineered building.		

Individuals Must Sign a "Pre-Work Briefing Form" After Reviewing This JSA.

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
ELEVATED WORK		
✓ NA	FALLS > **6'** or within **15'** of a ROOF OR MEZZANINE EDGE where the fall is >6'	❑ Existing Guardrails ❑ Hole Covers Marked "HOLE" ❑ Fall Restraint ❑ Temporary Guardrails ❑ Manlifts used for elevated work ❑ ❑ Warning Line 15' from Edge ❑ Fall Arrest w/ harness/lanyard (identify tie-off points) **Fall Protection Comments (describe equipment used):**
NA	LADDERS / STAIRS ❑ Extension Ladders ✓ Step Ladders ❑ Fixed Ladders ❑ Stairs	✓ Employees training in safe ladder use at toolbox safety meeting ❑ Extension ladders are properly footed, secured at top, and setup at proper angle ✓ Stepladders are set on level ground or properly shimmed with spreaders locked. ❑ Stairs have proper rise over run and stairs >4 steps or 4' have guardrails. **Ladders/Stairs Comments:**
✓ NA	SCAFFOLD Type:	❑ Scaffolds erected and inspected under supervision of competent person: **Competent Person: _____ Company: _____** ❑ Toprail and midrail provided on scaffolds >10' (otherwise specify other fall protection) ❑ Work platforms are at least 18" wide & made of scaffold lumber or cleated aluminum planks. ❑ Scaffolds placed on mud sills, pavement, concrete or other solid surface **Scaffold Comments:**
✓ NA	MANLIFT used to reach work ❑ Scissor Lift ❑ Extensible Boom ❑ Articulated Boom ❑ vertical Lift ("Genie")	❑ Operators are sufficiently trained, experienced and qualified. ❑ Equipment is inspected after mobilization and is in good condition. ❑ Harness & Lanyard worn whenever operating the lift (scissor lifts may be excepted) ❑ Overhead and surface obstructions are reviewed with operators prior to use. **Manlift Comments:**
EXCAVATIONS / TRENCHING		
❑ NA	❑ Max Depth ≥ 20' ❑ Max Depth ≥ 5' ❑ Max Depth <5' with potential cave-in hazard ❑ Potential permit-required confined space at depth ≥ 4' ❑ Underground utilities ✓ Structures/foundations	❑ Sloping & shoring for excavations ≥20' are approved by a professional engineer ❑ Sloping & shoring for excavations ≥5' when persons are exposed to cave-in. (specify below) ❑ Sloping & shoring for shallow (<5') excavations with cave-in hazard (specify below) ❑ Excavations ≥ 4' are classified as a non-permit confined space ❑ Excavations ≥ 4' are classified as Alternate Entry or Permit-Required (see confined space) ✓ Underground utilities have been identified and marked. ❑ Local "dig safe" organization has been notified for utility locations in public areas or rights of way. Number: _____ Date: _____ ✓ Hand digging within 3' of utility locations.

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
	❑ Falls into excavations ✓ **If trenching is required it not expected to exceed 24' in depth.**	✓ Excavations are protected by perimeter fencing (not barricade tape): (☐ rigid fence - chain link or wood ✓ safety fence 6' from edge.) **Excavation Comments:** **Suitable Barricades will be placed around any excavation area to prevent unauthorized entry.** **In high traffic areas, use only portable chain-link fence, saw horses, or other solid barriers. Safety fence may be used in low traffic areas. Use flashing lights for excavations left open overnight that obstruct plant roads.**
CONFINED SPACES		
✓ NA	❑ No Serious Hazards ❑ Toxic atmosphere ☐ carbon monoxide ☐ hydrogen sulfide ☐ ❑ Flammable atmosphere ❑ Low oxygen ❑ Combustible dust ❑ Other Serious Hazard:	❑ Confined space is altered so that it is no longer a confined space. (describe below) ❑ Confined space is downgraded to a non-permit confined space. (identify which spaces below) ❑ Alternate Entry is used. (Identify which space qualify for confined space entry below) ❑ Full permit-required confined space entry is used due to presence of serious hazards. ❑ Rescue team has been notified (☐ Paid FD ☐ Volunteer FD ☐ Plant Rescue) Rescue Team:_____ Phone Number: _____ ❑ All entrants and attendants for Alternate Entry and Permit-Required Entry have confined space entry training. **Confined Space Comments:**
LOCKOUT-TAGOUT / ELECTRICAL		
❑ NA	Maintenance, construction, or modification of processes and equipment with POTENTIAL UNEXPECTED RELEASE OF ENERGY. Identify energy types: ✓ Electrical ❑ Pressurized liquid piping ❑ Compressed gas / steam ❑ Moving Parts ❑ Hydraulic systems ❑ Chemical release ❑ **Describe Equipment requiring lockout :** **Release of contaminated water** from treatment system piping or equipment during construction or line breaking activities. Rotating or moving parts associated with pumps, blowers, etc *NOTE: If the contaminated water is not pumped into newly installed equipment during construction and mechanical systems are not otherwise energized, then mechanical LOTO is not anticipated*	✓ System owner (client) will lockout equipment following their procedures and O'Brien & Gere will "co-lock" equipment to prevent premature startup by owner or subcontractors. ❑ OBG to develop and implement lockout procedures for equipment under OBG control: ☐ equipment-specific de-energization and lockout procedure (required for O&M) OR ☐ de-energization and lockout devices are identified below ❑ Group lock box will be used with all persons working on equipment attaching their own lock(s) and tag(s). Location of lock box: _____ ✓ Equipment or process components will be individually locked with all persons working on equipment attaching their locks and tags directly on equipment. **Lockout Comments:** **All persons exposed to potential injury from the unexpected energization of system components must have perform work under a lockout/tagout (LOTO) program with their own lock(s) in place. Ensure pumps and fans are in a safe condition and piping is purged and blanked when necessary. When tieing in electrical power and air supply piping, ensure equipment is properly locked out to prevent injury from unexpected releases of energy (i.e., electric shock and compressed air.** 1. **O'Brien & Gere SSHC (with support from GE if necessary) will identify lockout boundaries and operate necessary valves, breakers, etc.** 2. ***Purge and drain piping* if appropriate.** 3. **The site owner will place a lock onto each device or authorize the O'Brien & Gere site foreman or supervisor (or designated subcontractor) to place a lock on each device.** 4. **O'Brien & Gere (or designated subcontractor) shall keep a list of locks and tags placed on each equipment or system that is locked out. An *Equipment-Specific LOTO form* may be used.** 5. **Keys to all locks will be placed in a lock box** 6. **Each person working on a system or equipment that is locked out must place their lock and tag on the lock box.** 7. **Locks and tags must be removed from lock boxes at the end of each shift.**
✓ NA	OVERHEAD POWER LINES _____ KV _____ ft above ground _____ KV _____ ft above ground	❑ Request to de-energize lines will be submitted for work within 20' of power lines. Request sent to: _____ Date: _____ ❑ No one will be permitted to work <10' to power lines without lines being de-energized. ❑ Project persons are informed of 20' safety zone around energized power lines. ❑ Project persons are informed of additional restrictions required when working ≤20' but >10': ☐ Dedicated spotter for all elevated work or operation of equipment that can contact lines

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
		☐ Barricades setup at 20' from base of power lines to establish a "restricted work area." ☐ "Power Line Safety Permit' required to work within 20' of power lines. ☐ Power lines are shielded and/or marked with high visibility material **Power Line Comments:**
✓ NA	ARC FLASH Location: _____ Voltage: _____	❑ Electrical equipment evaluated for arc flash potential by a qualified person. ❑ Persons with potential arc flash exposure are properly trained and equipped with electrically rated gloves, face shield, coveralls, etc. ❑ Non-essential personnel will be kept clear of all areas affected by arc flash ❑ Plant fire protection dept., safety dept, and emergency responders will be notified. **Arc Flash Comments:**
HEAVY EQUIPMENT (other than cranes)		
❑ NA	Struck By, Run-Over, Caught In Between (pinch points), Roll Over, Fluid Leaks ❑ Bulldozer ✓ Excavator ❑ Front Loader ❑ mini Skid Steer (bobcat) ❑ mini Excavator ❑ Dump Truck ✓ Drill/Boring Rig ❑ Lull / Material Handler ❑ Forklift ❑ ❑ ❑ Manlift - specify type(s)	✓ Qualified persons operate all heavy equipment. Qualifications were determined by: ☐ License or certificate (required for forklift and lull operators). ☐ "Good-Guy Letter" on company letterhead or email with company email address. ✓ Equipment will be inspected upon mobilization by**: Site Supervisor** All leaks or defective safety equipment will be repaired before use. ✓ Operators will be reminded of seatbelt use by: **Site Supervisor** ❑ High visibility vests are required for: _____ ❑ Operators will review manufacturer's safety guidelines for all equipment operated on slopes. Max. safe slope for each vehicle: _____ ❑ Counterweight swing radius will be barricaded. ✓ Operators and helpers will maintain a safe distance to moving parts. All those working near moving or rotating parts will secure loose hair, clothing, and equipment. **Drilling or boring into contaminated soil or groundwater will require additional safety precautions outlined in the Environmental section of this JSA.** ❑ Fall protection will be worn by all those in manlifts (scissor lifts are excepted: ☐ Yes ☐ NO) ✓ Drill rigs will only be moved with masts lowered. Masts will be erected with outriggers fully extended when equipped with outriggers. ❑ Rigging directly to the forks of a lull, forklift, or front loader equipped forks is prohibited. Crane hook attachments will be used (specify):_____ ✓ Spill equipment is available for fuel and hydraulic fluid leaks. Location; _____ **Heavy Equipment Comments:** **Additional safety controls for drill rig operation and maintenance include:** 1. **Only qualified persons may operate a drill rig** 2. **Only qualified mechanics may repair and service a drill rig. No major modifications or structural repairs may be made without approval from the manufacturer** 3. **Equipment must be inspected daily** 4. **All machine guards must be in place.** 5. **Ensure project personnel are kept clear of hot surfaces associated with mufflers, mud pumps, and drill rig engines.** 6. **Do not touch revolving drill pipe or work on machinery that is moving.** 7. **Do not start drill rig motor until drill pipe is fully secure.** 8. **Do not use excessive down pressure while drilling.**
HOT WORK / WELDING / CUTTING		
❑ NA	Fire, explosion, burns, UV flash, fume, gases ❑ Welding - Specify: base metal:_____ electrode:_____ Shield gas:_____	❑ O'Brien & Gere will issue hot work permit. Name:_____ ❑ The site owner will issue hot work permits. Name: _____ ❑ Hot work permits are visibly posted. Location(s):_____ ❑ Fire watches are identified by name and remain _____ minutes after hot work (min of 30). ❑ A 20 lb ABC fire extinguisher will be placed within 25' of hot work or as directed on permit. ❑ Painted surfaces have been evaluated for lead content by: ❑NA _____

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
	❑ Oxy/Acetylene Cutting base metal:_____ ❑ Soldering/Brazing ❑ Grinding ❑	❑ Insulation has been evaluated for asbestos content by: ❑NA _____ ❑ Pedestrians and adjacent workers will be protected from UV Flash by _____ ❑ Sparks and slag will be prevented from falling through floor and wall openings. ❑ Air monitoring will be conducted in hazardous areas. Haz Material:_____ Areas to be Tested:_____ ❑ Oxygen and acetylene cylinders will be separated by 20' when not used within 24 hours. ❑ All compressed gas cylinders in storage will be secured upright and capped. ❑ Face shields will be used for all grinding, cutting, and welding work. **Hot Work Comments: (Identify areas or tasks requiring hot work permits.)**
POWER TOOLS, HAND TOOLS, and EXTENSION CORDS		
❑ NA	eye injury, hand/arm cuts, electrical shock, strains, foot injuries, dust ❑ Grinders ❑ Jackhammer/Chip hammer ❑ Needle Gun ❑ Explosive Actuated (Hilti) ❑ Chop saw ❑ Chain saw ❑ concrete/asphalt saw ✓ Misc. Hand Tools ❑	✓ All tools and electrical cords will be inspected upon mobilization by:_____ ✓ All tools and electrical cords in-use will be inspected daily by:_____ ❑ Grinder speeds will not exceed grinding wheel ratings. ❑ Jackhammers will not be used in a horizontal position without mechanical support. ❑ Only properly trained users will operate explosive-actuated tools. Identify user names and training dates: _____ ✓ Water or wet cutting performed to control dust ❑ Respirators used to prevent exposure to dust (respirator type:_____) ✓ Face shield and safety glasses used (required for all grinders, jackhammers, chain saws, etc) ❑ Kevlar chaps and jacket (required for all chainsaw work) ❑ Hearing protection required for which tools or areas: _____ _____ ✓ All extension are in good condition with no cuts through outer insulation, ground plugs are present, and no "vinyl tape" repairs. (Only 12 gauge extension cords may be repaired.) **Tool & Cord Comments:**
MANUAL MATERIAL HANDLING / MATERIAL STORAGE / HOUSEKEEPING		
❑ NA	back or shoulder strain, struck by falling objects, trips and falls, incompatible materials (fire or explosion) ✓ hvy manual lifting (>50 lbs) ❑ chemical storage ❑ compressed gas storage ❑ Tall storage greater than 2 pallets stacked. ❑ Material & equipment laydown areas ❑ Trash & debris removal ❑ Temporary cords & hoses placed across walkways ❑ ❑ ❑	❑ Mechanical lifting equipment used to reduce manual material handling: (☐ Forklift/Lull ✓ Heavy Equipment ☐ Chain-fall ☐_____) ✓ Manual lifting more than 75 lbs by a single person will be avoided. ✓ Good manual lifting techniques will be reviewed with the following trades/persons prior to site work: **All O'Brien & Gere Site Personnel** ❑ Incompatible chemicals will be separated by 20' or a concrete block wall. ❑ Secondary containment will be provided for the following chemicals: _____ _____ ❑ Safety equipment will be located near chemical storage. ☐ Spill Kit ☐ Emergency Shower ☐ Eyewash ☐ Drench Hose ☐ Splash PPE ❑ Flammable gases and oxygen will be separated by 20'. ❑ All compressed gas cylinders will be transported vertically and secured upright. ✓ Equipment and materials will be stacked in laydown areas with aisles as necessary for safe access. All un-used equipment & materials will be returned to laydown areas daily. Designated laydown areas:_____ ❑ Materials will not be stacked greater than 2 pallets high without being secured. ❑ Trash and debris will be removed daily and placed in designated containers. Specify debris segregation and location of disposal containers below. ✓ Hoses & Cords will be run out of walkways (e.g., within 6" of walls or 7.5' overhead) whenever possible or will be clearly marked by cones or barricades. **Material Handling & Housekeeping Comments:**
TRAFFIC & SIDEWALK OBSTRUCTION		
❑ NA	✓ Vehicle accidents ✓ Pedestrians struck by vehicles or heavy equipment	❑ DOT signal devices will be used to re-route vehicles around excavations or busy site entrances/exits that affect road traffic. ❑ Flaggers will be used and have DOT Flagger Training

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
	❑ Pedestrians falls ❑ Pedestrian struck-by falling objects	❑ Pedestrian traffic will be safely routed around or over excavations. ❑ Pedestrian traffic will be safely routed around or under overhead work. **Traffic & Sidewalk Comments:** **Barricades and or safety fence will be placed around work zones to prevent unauthorized entry in or around work area.**
CRANES & RIGGING		
✓ NA	tip-over, struck-by dropped loads, Crane Make:_____ Crane Model:_____	❑ Operator is qualified: ☐ CCO ☐ State License ☐ "Good-Guy" Letter ❑ Lifting & Rigging Plan will be prepared by: Company Name:_____ ❑ No Lifting & Rigging Plan is required - crane work is not critical and not in a hazardous area. ❑ Annual crane maintenance certification within last 12 months. Date:_____ ❑ Periodic crane inspection within 30 days. Date:_____ ❑ Site owner notified by: Name:_____ Date: _____ **Cranes & Rigging Comments:**
STEEL ERECTION		
✓ NA	structural collapse (falls, hot work, cranes, and rigging are covered elsewhere in this JSA)	❑ Written "notice to proceed" will be sent to the steel erection sub. Date:_____ ❑ Written notice of any bolting or rod modifications made by after drawings were "issued for bid" to the steel erection sub. Date(s):_____ **Steel Erection Comments:**
CONCRETE / MASONRY		
❑ NA	struck by injury, trips & falls, cuts from rebar, skin burns from contact with concrete (concrete saw, jackhammers, fall protection, heavy equipment are covered elsewhere in this JSA)	✓ All rebar ends <6' must be protected by rebar caps ❑ Only authorized persons will be allowed to walk on rebar pads to minimize the number of persons at risk of tripping or falling. ✓ Concrete truck operator will be instructed to take direction only from the concrete worker who is handling the discharge chute/hose when related to moving the discharge chute/hose. ❑ Finishers, masonry workers, & others who must kneel extensively will be provided kneepads. ❑ Temporary steps will be provided for all elevation changes ≥18". **Concrete Masonry Comments:**
ENVIRONMENTAL HAZARDS / HAZARDOUS WASTE SITE WORK		
❑ NA	Exposure to hazardous vapors or dust, contact with contaminated materials, fire, explosion. Contaminants of Concern and hazardous chemicals include: ✓ volatile organic compounds (describe **Low Levels in Soil and Groundwater)** ✓ semivolatile organic cmpds (describe : **DNAPL** ❑ metal dusts (describe:_____ _____) ✓ PCBs ❑ caustic (NaOH) ❑ Acid (H2SO4, HCL) ❑ ❑ (many other hazardous waste site hazards are covered elsewhere in this JSA)	✓ Site workers with a potential for contact with contaminated materials and work in Level C PPE will have OSHA 40-hour training, current 8-hour refresher, and medical exam. ❑ Site workers with minimal contact with contaminated materials and no work in Level C PPE will have OSHA 40-hour or 24-hour training, current 8-hour refresher, and medical exam. ❑ Foremen or Supervisors overseeing field crews will have 8-hour OSHA Supervisor training. ❑ No intrusive work activities or areas are anticipated with current scope of work. ✓ Intrusive work activities include **All excavation and boring work and handling of any construction water and soil that may be generated during site activities is intrusive. Intrusive work also includes handling contaminated tools, decon activities and handling decon water.** ❑ The perimeter of intrusive work areas are identified by: **Safety Fence or Barricades** ❑ Decontamination of personnel or equipment is not anticipated with the current scope of work. ✓ Decontamination of personnel and small tools will be conducted as follows: _____ ✓ Decontamination of heavy equipment will be conducted as follows: _____ ✓ Heavy equipment leaving the site will be inspected by: **Site Supervisor** ❑ Work area monitoring is not anticipated with the current scope of work. ✓ Work Area Air Monitoring as follows for (dust, VOCs, etc) **when excavating contaminated soil or if odors are observed in the general work area.** **- Monitor for organic vapors and upgrade to level C if required based on air monitoring results (sustained readings of 1 minute)** • **5 ppm – Half or Full-face Level C PPE**

HAZARD		HAZARD CONTROLS (check all that apply and comment as required)
		• **10 ppm – Full-Face level C PPE** • **50 ppm – Stop Work, Notify GE Representative and the O'Brien & Gere Manager of Corporate H&S** **- Observe dust levels during drilling and implement dust controls accordingly (i.e. light water spray to suppress dust production)** **Coordinate work with other site activities to minimize the impact that nuisance odors may have on persons in adjacent areas.** ✓ Community Air Monitoring is not anticipated with the current scope of work. ❑ Community Air Monitoring is required per the attached document. **Comments/Other:** **1. Initial PPE is Modified Level D - This will *include Hardhat, Safety Glasses, Steel toes Shoes, Gloves and Tyvek Coveralls* - with the potential to intermittently upgrade to Level C based on air monitoring results.** **2. Wear or modify PPE as required in this HASP to minimize contact with contaminated soil.** **3. If it is raining or soil is excessively wet from groundwater, wear Saranex (or equivalent) coveralls in place of standard Tyvek.** 4. **Follow proper decontamination procedures to remove gross contamination from protective clothing, especially boots.**

EMERGENCY RESPONSE	**(911 Service is Available** ✓ Yes ☐ No	**Cell Phone Required** ✓ Yes ☐ No)	
Emergency Medical Treatment - Hospital Name: Hospital Address:	Glens Falls Hospital 100-102 Park St. Glens Falls, NY 12801	**Number:**	518-926-1000
Non-Emergency Med. Treatment - Clinic Name: Occupational Clinic Address:	OEHC 1873 Western Avenue Albany, NY 12203	**Number:**	518-690-4420 800-419-1230
Fire Department Name	Glens Falls Fire Dept.	**Number:**	518-761-3822
Spill Response:	NYS DEC 42-hr Hotline	**Number:**	315-426-7400 or 800-457-7362
Client Representative Name::	David L. West	**Office Number:** **Cell Number:**	518-746-5560
O'Brien & Gere **Project Manager** Name:	Paul Mazurkiewicz, PE	**Office Number:** **Cell Number:**	315-437-6400 x 2826 315-254-4710
O'Brien & Gere **Corporate H&S** Name:	Jeffery R. Parsons, CIH	**Office Number:** **Cell Number:**	315-437-6400 x2871 315-391-0638

HAZARD	HAZARD CONTROLS (check all that apply and comment as required)

Emergency Response Comments:

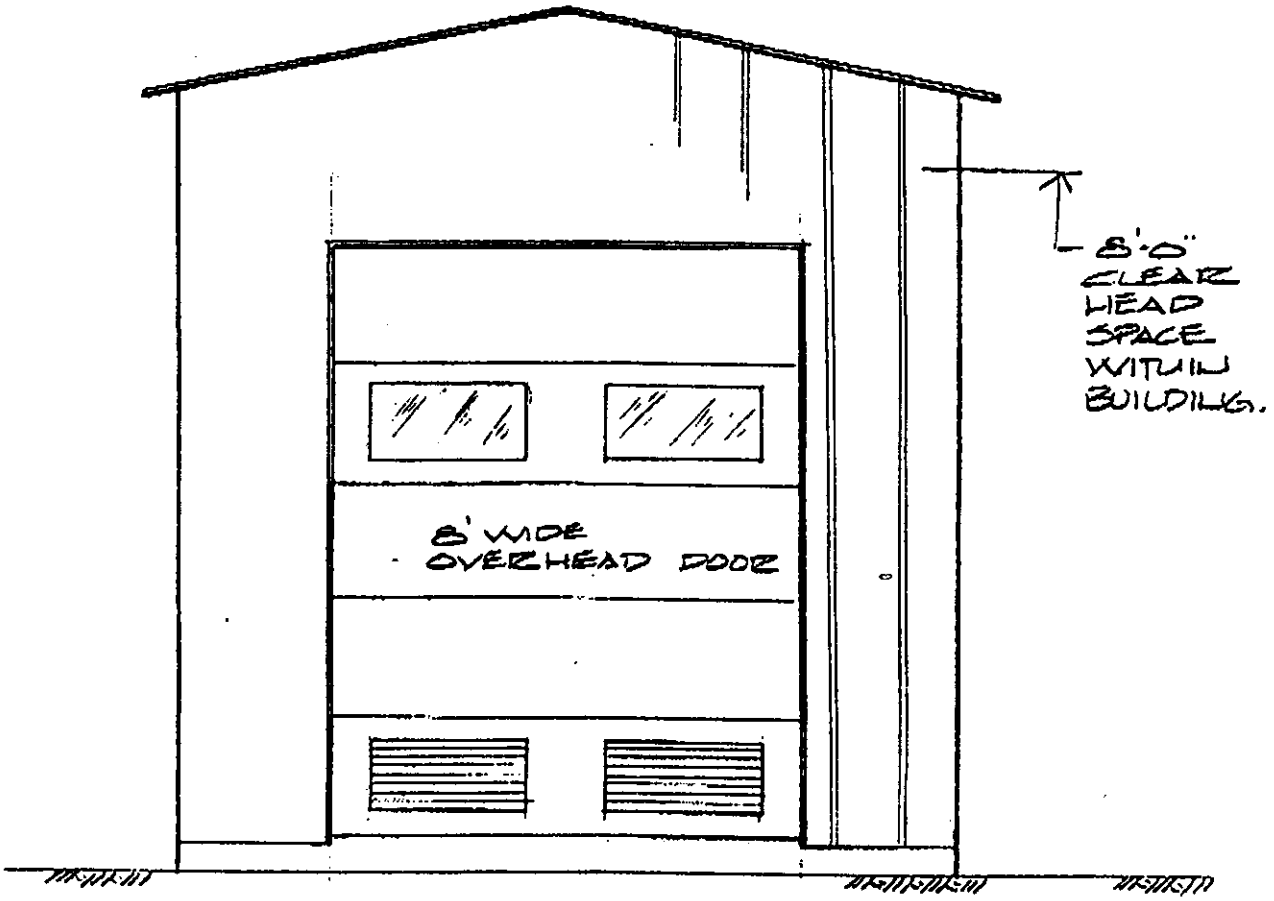
Directions to Hospital

1. **Leave the site and take PARK AVE to BROADWAY (RT 4)**
2. **Take a LEFT onto BROADWAY (RT 4 North)**
3. **Veer LEFT onto RT 254**
4. **Go straight onto RT 32 toward Glens Falls (RT 254 takes a right turn)**
5. **Take a LEFT onto MAIN ST (RT 9 South) when entering Glens Falls**
6. **Take the NEXT RIGHT onto PART ST**

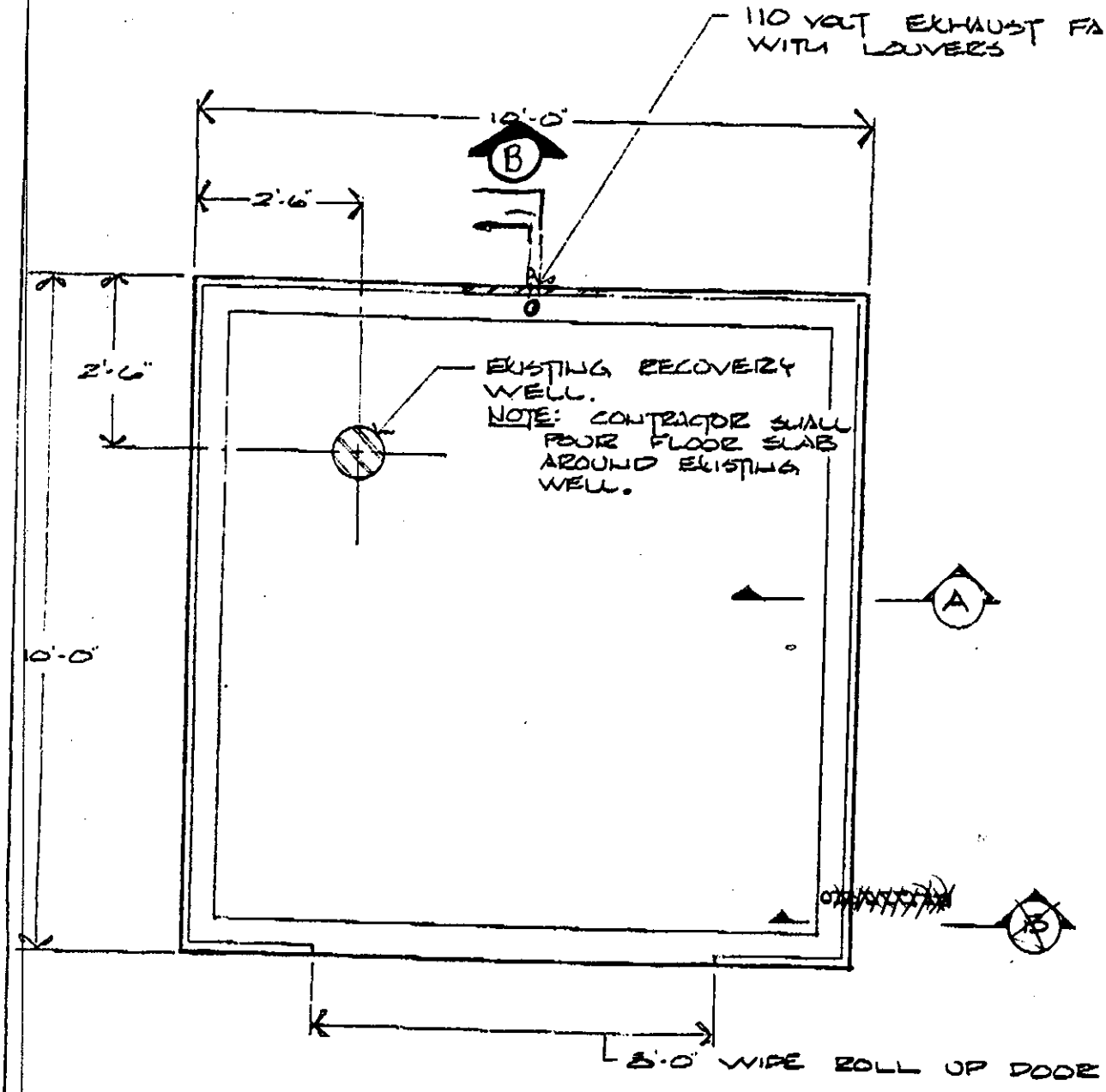
Glens Falls Hospital is located at 100-102 Park St. Follow signs.

ATTACHMENT 2

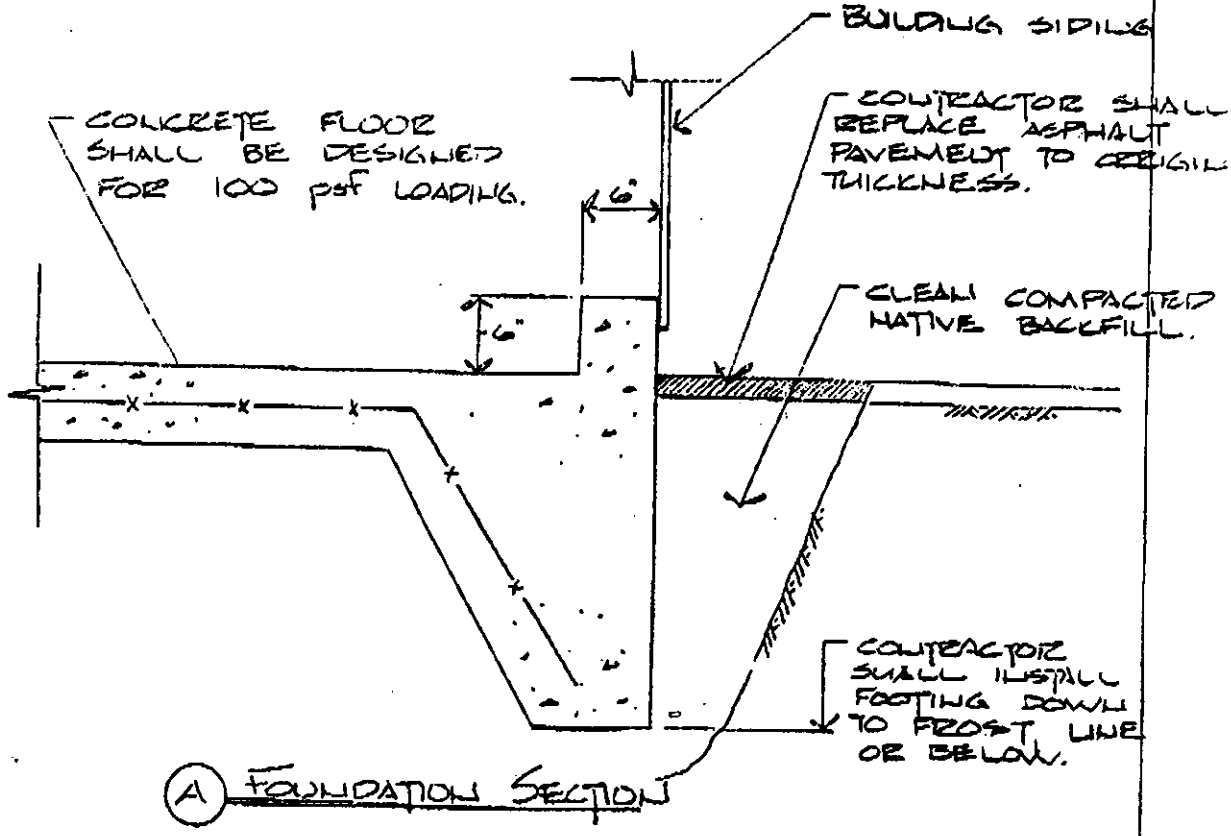
Collection Building Drawings – Dunn Geoscience Engineering



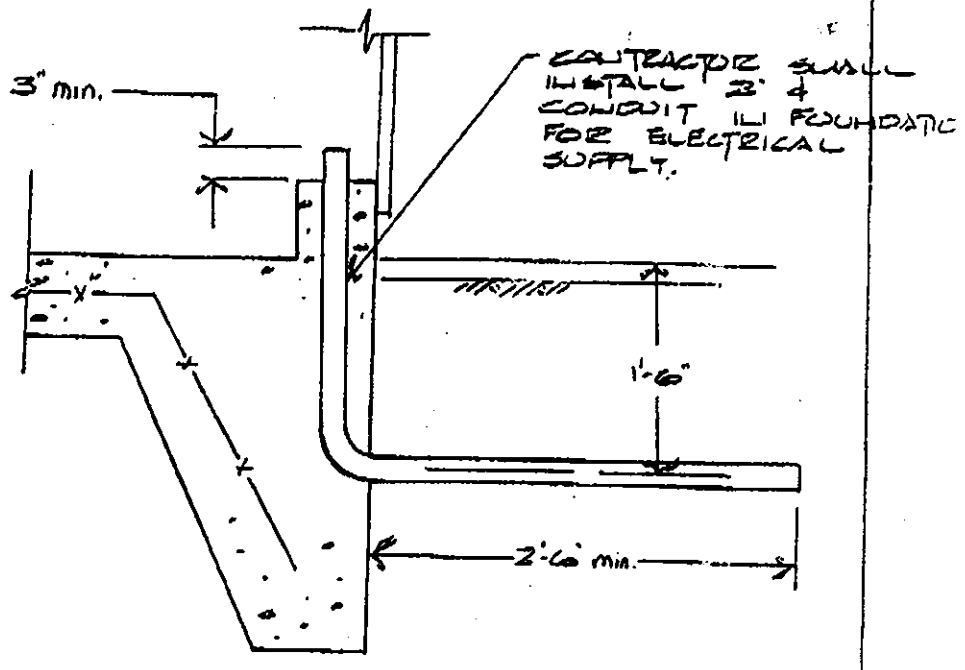
TYPICAL ELEVATION


110 VOLT EXHAUST FAN WITH LOUVERS
10'-0"
B
2'-6"
2'-6"
EXISTING RECOVERY WELL.
NOTE: CONTRACTOR SHALL POUR FLOOR SLAB AROUND EXISTING WELL.
A
10'-0"
B
8'-0" WIDE ROLL UP DOOR

PLAN VIEW



(A) FOUNDATION SECTION



(B) ELECTRICAL CONDUIT SECTION

PRE-ENGINEERED BUILDING SPEC's.

SIZE:
- 10 FOOT BY 10 FOOT WITH 8 FOOT MIN. FREE HEAD SPACE WITHIN THE BUILDING.

FOUNDATION:
- POURED CONCRETE SLAB WITH EDGE FOOTING EXTENDING DOWN TO OR BEYOND FROST LINE.
- FLOOR SLAB SHALL BE DESIGNED FOR 100 psf MIN LOADING.
- SLAB SHALL HAVE 6" WIDE BY 6" HIGH CONCRETE CURB ON ALL FOUR SIDES.
- CONTRACTOR SHALL PLACE ONE 2 INCH DIA. CONDUIT IN FOUNDATION FOR ELECTRICAL SUPPLY TO BE PULLED THROUGH BY OTHERS.

BUILDING DESIGN: PRE-ENGINEERED BUILDING SHALL BE DESIGNED TO MEET OR EXCEED NYS BUILDING CODES (SNOW LOADING, WIND LOADING, ETC...) FOR THE FORT EDWARD, N.Y. AREA.

VENTILATION:
- CONTRACTOR SHALL SUPPLY AND INSTALL, ONE, 18 INCH EXHAUST FAN (120 VOLT SINGLE PHASE). EXHAUST FAN SHALL HAVE AUTOMATIC LOUVERS WHICH CLOSE WHEN FAN IS NOT IN USE. ELECTRIC BY OTHERS.
- OVERHEAD DOOR SHALL HAVE VENT PANELS OF ADEQUATE SIZE TO PASS THE SAME AMOUNT OF AIR, AS THE EXHAUST FAN IS PULLING FROM THE BUILDING.

BUILDING ENTRANCE:
- CONTRACTOR SHALL SUPPLY AND INSTALL ONE 8 FOOT OVERHEAD DOOR. DOOR SHALL HAVE ONE PANEL WITH WINDOWS AND ONE PANEL WITH VENT PANELS AS SPECIFIED UNDER VENTILATION.
- CONTRACTOR SHALL USE ASPHALT PAVING TO RAMP UP TO THE 6 INCH CURBING ON OUTSIDE OF BUILDING AT ENTRANCE.

INSULATION: DOOR AND BUILDING ARE NOT TO BE INSULATED.

ELECTRICAL: ELECTRICAL WIRING WILL BE PREFORMED BY OTHERS.

SIDING AND ROOFING:
- ROOF AND SIDING SHALL BE MANUFACTURERS STANDARD SHEET METAL PANELS, WITH THE COLOR BEING SELECTED BY OWNER FROM STANDARD COLORS.
- ROOF AND SIDING SHALL BE FINISHED OFF WITH STANDARD TRIM.

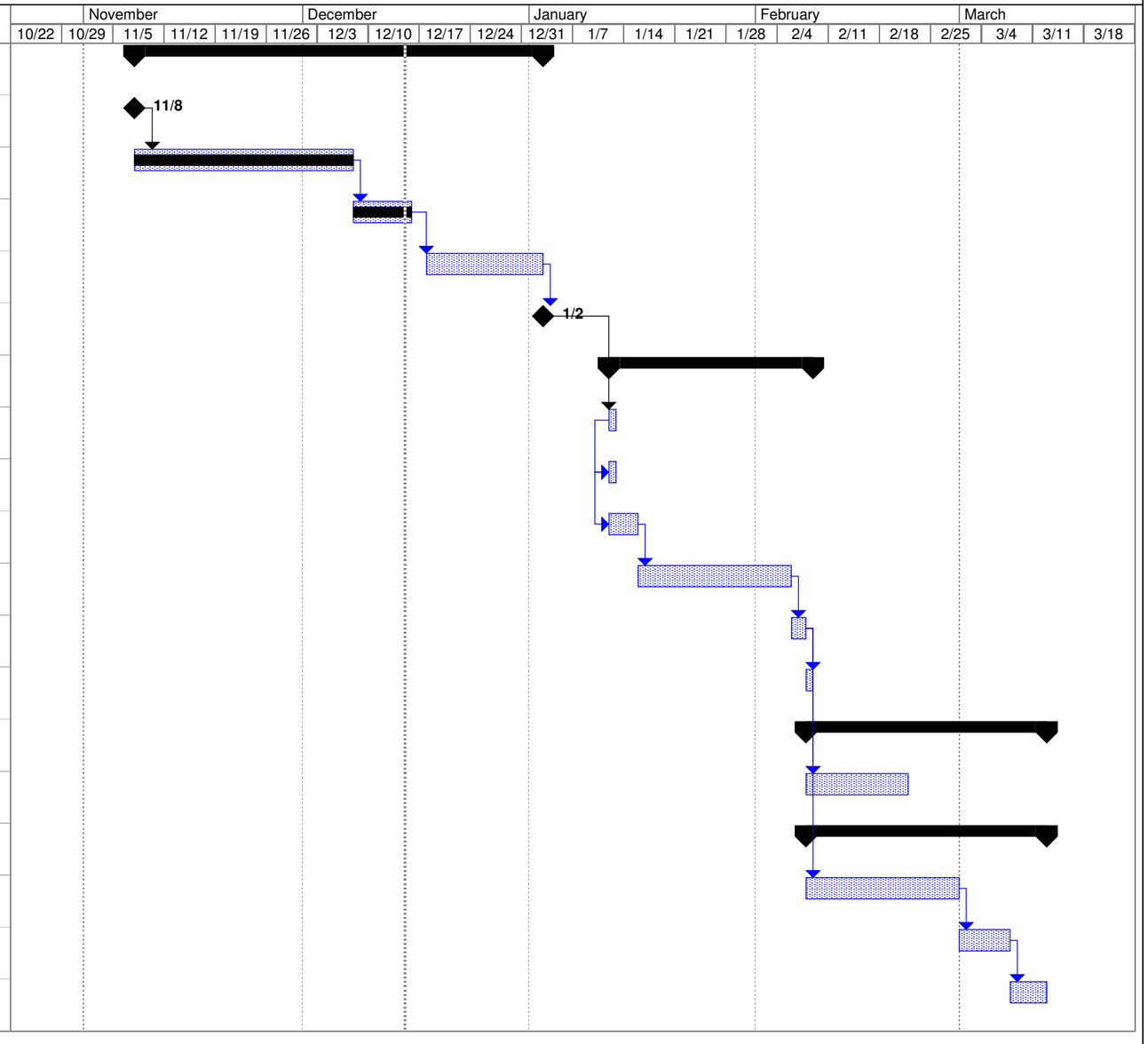
SUBMITTALS:
1. CONTRACTOR SHALL SUBMIT ALL NECESSARY DOCUMENTATION TO MEET LOCAL TOWN BUILDING CODES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS.
2. SHOP DWG'S. AND BUILDING SPECIFICATIONS PRIOR TO OWNER ORDERING BUILDING

ATTACHMENT 3

Project Schedule

Construction Work Plan
DNAPL System - OU-3 System Enhancements
General Electric - Ft. Edward, NY Facility

ID	Task Name	Duration	Start	Finish	Predecessors
1	**Construction Work Plan**	**36 days**	**Wed 11/8/06**	**Tue 1/2/07**	
2	Submit Construction Work Plan to NYSDEC	0 days	Wed 11/8/06	Wed 11/8/06	
3	NYSDEC Review of Construction Work Plan	20 days	Wed 11/8/06	Thu 12/7/06	2
4	Revise/Resubmit Construction Work Plan to NYSDEC	6 days	Fri 12/8/06	Fri 12/15/06	3
5	NYSDEC Review of Revised Construction Work Plan	10 days	Mon 12/18/06	Tue 1/2/07	4
6	NYSDEC Approval of Construction Work Plan	0 days	Tue 1/2/07	Tue 1/2/07	5
7	**Construction of OU-3 Modifications**	**20 days**	**Fri 1/12/07**	**Thu 2/8/07**	
8	Mobilize for OU-3 Modification Construction	1 day	Fri 1/12/07	Fri 1/12/07	6FS+7 days
9	Locate Vertical Recovery Well	1 day	Fri 1/12/07	Fri 1/12/07	8SS
10	Drill/Develop Vertical Recovery Well	2 days	Fri 1/12/07	Mon 1/15/07	9SS
11	Vertical Well Piping/Collection System Construction	15 days	Tue 1/16/07	Mon 2/5/07	10
12	System Commissioning	2 days	Tue 2/6/07	Wed 2/7/07	11
13	Demobilization	1 day	Thu 2/8/07	Thu 2/8/07	12
14	**Completion Documentation**	**23 days**	**Thu 2/8/07**	**Mon 3/12/07**	
15	As-Builts/O&M Manual	10 days	Thu 2/8/07	Wed 2/21/07	12
16	**Certification Report**	**23 days**	**Thu 2/8/07**	**Mon 3/12/07**	
17	OBG Deliverable	15 days	Thu 2/8/07	Wed 2/28/07	12
18	GE Review & Approval of Certiciation Report	5 days	Thu 3/1/07	Wed 3/7/07	17
19	Revise/Submit Certification Report to NYSDEC	3 days	Thu 3/8/07	Mon 3/12/07	18



Project: workplan_schedule_rev1
Date: Fri 12/15/06

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

O'BRIEN & GERE

Figures

I:\DIV50\PROJECTS\5731\30137\DWG\TRANSITION ZONE\GEN\30137-048-G54.DWG

PROPOSED VERTICAL WELL
ORW-3 LOCATION

ORW-3

HORIZONTAL WELL LOCATIONS

PROFILE LINE 1
(RED PAVEMENT MARKS)

RW-7 Pilot Boring

LEGEND

- PROPOSED DNAPL HORIZONTAL WELL LOCATION
- PROPOSED TRANSITION ZONE RECOVERY WELL
- MONITORING WELL
- RECOVERY WELL
- RAILROAD
- PROPERTY BOUNDRY
- —X— FENCE
- UTILITY POLE
- LIGHT POLE
- —SAN— SANITARY SEWER
- — ST — STORM SEWER
- — F — FIRE LINE
- — W — WATER LINE
- — OE — OVERHEAD ELECTRIC
- — UE — UNDER GROUND ELECTRIC
- MH MANHOLE
- CB CATCH BASIN

DRAWING NOTES:

1. HORIZONTAL WELL PROFILES SHOWN HERE ARE PROVIDED TO DEPICT TO THE DRILLER THE REQUIRED LOCATION OF THE WELL SCREEN. FINAL BEND RADIUS, CASING AND SCREEN SIZE, AND MATERIALS OF CONSTRUCTION SHALL BE DETERMINED BY THE ENGINEER BASED UPON THE DRILLERS APPROVED DESIGN SUBMITTAL.

NO.	DATE	REVISION	INIT.
B	11/08/06	MODIFICATION #2	
A	12/23/03	MODIFICATION #1	

HORIZONTAL SCALE IN FEET
1"=30' 30 0 30 60

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

O'BRIEN & GERE ENGINEERS INC.

GENERAL ELECTRIC COMPANY
FORT EDWARD FACILITY FORT EDWARD, NY
OU3 REMEDIAL DESIGN

DNAPL COLLECTION SYSTEM

GENERAL
DNAPL RECOVERY WELLS

HRW-1, HRW-2 AND ORW-3 SITE PLAN

HORIZONTAL WELLS HRW-1 AND HRW-2 PLAN

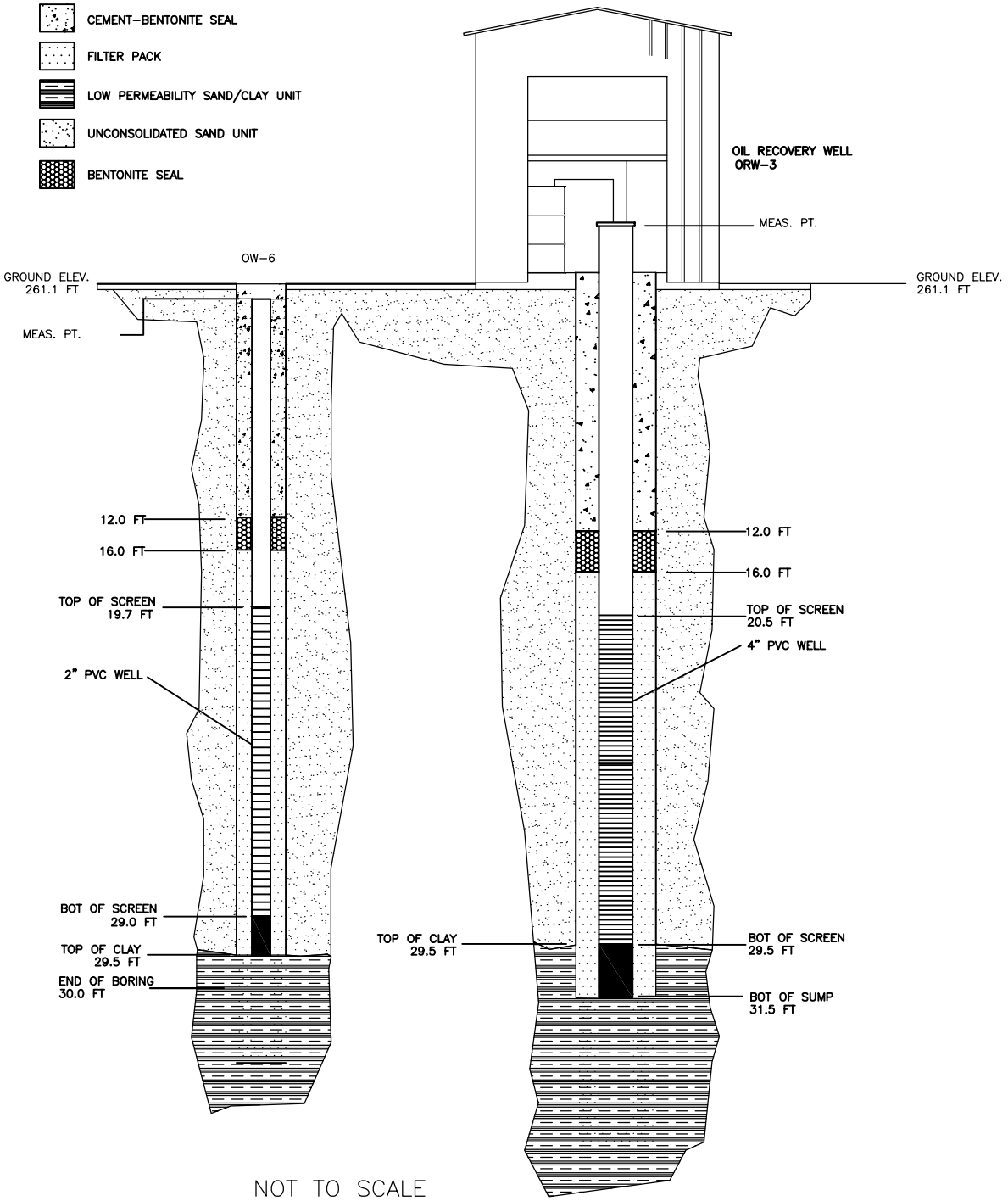
SCALE: 1"=50'

IN CHARGE OF _____
DESIGNED BY _____ CHECKED BY _____
DRAWN BY _____

FILE NO. 5731.30137.048
DATE NOV. 2006

F-1

PLOT DATE:

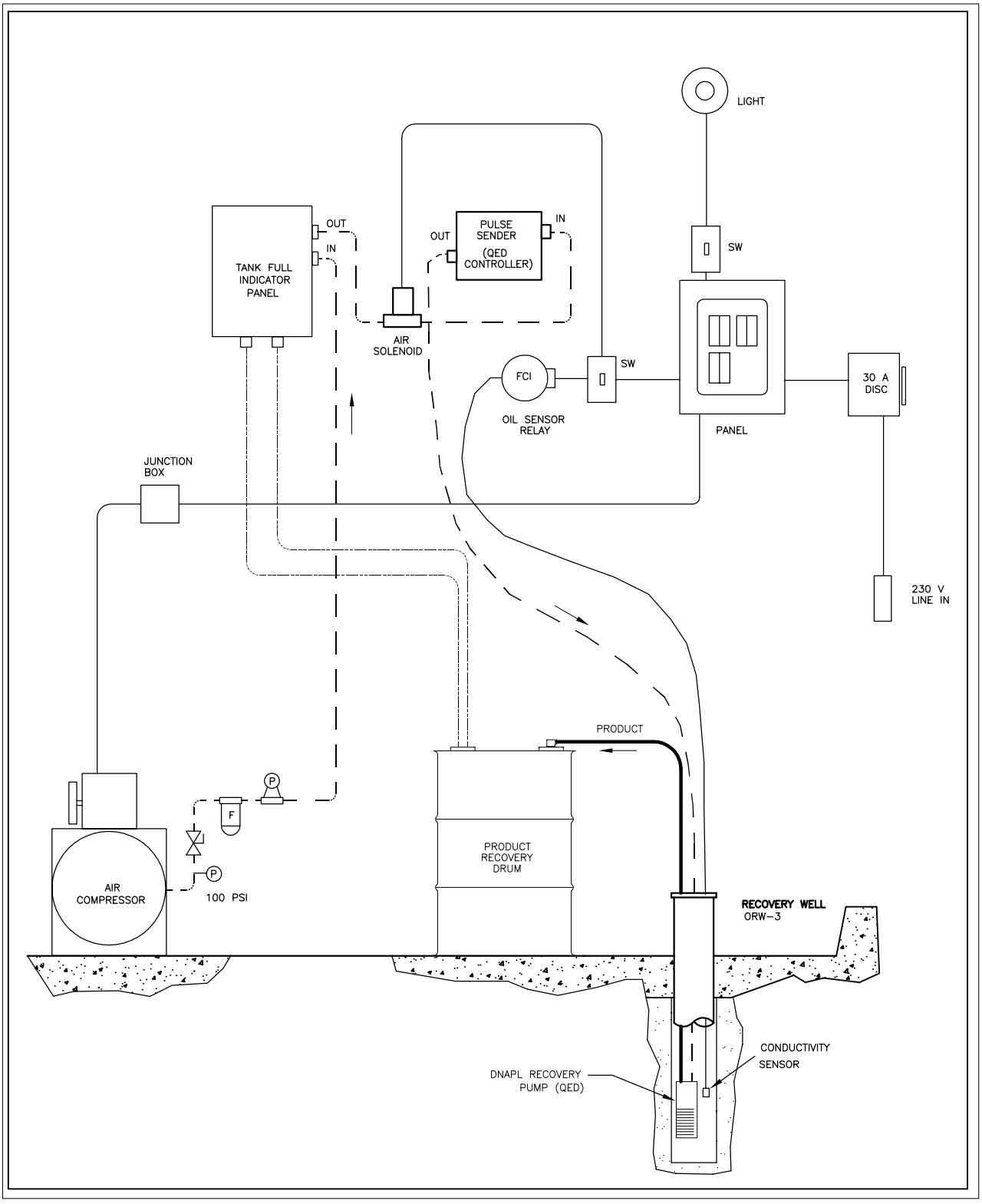


GENERAL ELECTRIC COMPANY
FORT EDWARD, NEW YORK

CROSS–SECTIONAL SCHEMATIC OF ORW–3 AND OW–6

34994.200.100
NOVEMBER 2006

O'BRIEN & GERE



GENERAL ELECTRIC COMPANY
FORT EDWARD, NEW YORK

OIL RECOVERY WELL ORW-3 SCHEMATIC

34994.200.100
NOVEMBER 2006

O'BRIEN & GERE