November 9, 2005

TRC
Customer-Focused Solutions

Mr. Gary Casper
New York Department of Environmental Conservation
Division of Solid and Hazardous Materials
625 Broadway, 9th Floor
Albany, New York, 12233

Re: Former Star Facility
Mountainville, New York

Dear Mr. Casper

The purpose of this letter is to present the results of the sub-slab vapor and indoor air sampling performed at the above-referenced site in accordance with the approved Site Investigation Work Plan. Additionally, as described below, a conceptual approach to mitigation of the sub-slab vapor detected is presented for your approval.

Sub-slab Vapor and Indoor Air Sampling

The sub-slab vapor and indoor air sampling was performed on September 21 and 22, 2005. The results are summarized on the enclosed Tables 1 and 2 and Figure 1. Sampling and analysis were performed in accordance with the approved work plan dated September 2005.

The results were compared to the criteria in the New York State Department of Health (NYSDOH) draft document titled *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*. As we understand it, based on the draft guidance document criteria, the sub-slab vapor and indoor air sampling results indicate a need for further monitoring in the private residence and mitigation measures are required for the warehouse.

Building Description

The Former Star Facility is a former manufacturing building presently used primarily for warehousing operations. The one-story building is approximately 700 feet long by 260 feet wide. Based on available information, three additions were made to the original building, all constructed with concrete floor slabs on grade in the 1950s. The building floor plan is shown on the attached Figure 2.

Based on observations recorded during recent groundwater monitoring well installation activities, the soil below the concrete floor slab was found to be a mixture of gravel, sand, and silt, expected to be of low to moderate permeability. The condition of the floor slab is in part unknown since several areas are covered with finished flooring and/or product packaging. In several areas where the floor slab is exposed, cracks are present and it is apparent that parts of the floor slab have been patched, likely after removal of equipment.

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Sub-slab Depressurization System

A sub-slab depressurization system (SSDS) is proposed to mitigate vapor intrusion from below the floor slab to the indoor building space. However, the effectiveness of a SSDS may be impacted by the apparent less than optimum permeability of the sub-slab soil. Accordingly, TRC is proposing a phased approach to the SSDS implementation.

The first phase of the SSDS design will be a pilot program to determine the effectiveness of sub-slab depressurization using conventional techniques. One pit will be installed below the manufacturing building slab. Additionally, visible, major floor slab cracks and defects will be repaired and monitoring points will be installed radially outward from the pit, as illustrated in the attached Figure 2. Proposed design details for the sub-slab depressurization pit and monitoring points are illustrated in Figure 3.

only MP3 and MP4 are a "radially outward" pair

After installation of the pit and monitoring points, a vacuum will be applied at the pit and the monitoring points will be used to measure the pressure differential between the indoor air and the sub-slab air and to determine the pit's zone of influence. The effectiveness of the sub-slab depressurization pit will be compared to the requirements outlined in the NYSDOH draft guidance document and the United States Environmental Protection Agency (USEPA) document titled *Radon Prevention in the Design and Construction of Schools and Other Large Buildings* (i.e., a minimum sub-slab pressure of –0.002 inches of water column). If the first phase proves the one sub-slab depressurization pit to be effective at the site, a SSDS to depressurize the entire building sub-slab will be installed.

I trust you will find the approach described above to be acceptable. Nevertheless, we will await your approval prior to proceeding.

What if it does not prove feasible as a "one sub slab" depressurization pit system? additional testing to lead to design of multi SSDS points / effective system - Propose

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Please do not hesitate to contact me at (212) 221-7822 if you have any questions.

Very truly yours,
TRC ENGINEERS, INC.

David S. Glass, P.E.
Assistant Vice President

Attachments

Table 1	Results of Sub-Slab Vapor Analyses
Table 2	Results of Air Sampling Analyses
Figure 1	Summary of Results of Sub-Slab Vapor and Indoor Air Sampling
Figure 2	Sub-Slab Depressurization System Phase I Plan
Figure 3	Sub-Slab Depressurization System Phase I Details

cc: P. Catizone
J. Guido

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TABLE 1
FORMER STAR FACILITY
MOUNTAINVILLE, NEW YORK
RESULTS OF SUB-SLAB VAPOR ANALYSES

Sample Location	SS-1	SS-2	SS-3	SS-4	Trip Blank
Date Collected	09/22/05	09/22/05	09/22/05	09/21/05	
Compound	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3
1,1,1-Trichloroethane (TCA)	37	**23,000**	680	100	ND
1,1-Dichloroethane	18	6900	440	ND	ND
1,1-Dichloroethene	ND	ND	2,800	ND	ND
1,2,4-Trimethylbenzene	ND	ND	ND	7.3	2.4
1,3,5-Trimethylbenzene	ND	ND	ND	3	0.64 J
2-Propanol	ND	ND	ND	ND	4.3
4-Ethyltoluene	ND	ND	ND	5.9	ND
Acetone	ND	ND	67	55	17
Benzene	ND	ND	ND	0.66	1.6
Carbon disulfide	ND	2,200	ND	ND	2.8
Chloroform	21	ND	49	ND	ND
Chloromethane	ND	ND	ND	ND	0.98
cis-1,2-Dichloroethene	590	310,000	ND	ND	ND
Ethanol	ND	ND	440	14	89
Ethylbenzene	ND	ND	ND	2.1	1.8
Trichlorofluoromethane (Freon 11)	ND	ND	ND	1.5	1.5
Dichloro-difluoro-methane (Freon 12)	ND	ND	ND	2.4	2.7
Methyl ethyl ketone	ND	ND	ND	23	2.2
Methyl tert-butyl ether	ND	ND	ND	7.3	2.8
o-Xylene	ND	ND	ND	3.6	2.2
m,p-Xylene	ND	ND	ND	9.8	6.6
Styrene	ND	ND	ND	1.5	1.2
Tetrachloroethylene (PCE)	**3500**	**36,000**	**3,000**	62	ND
Toluene	ND	ND	ND	5.6	6.6
trans-1,2-Dichloroethene	ND	4,600	ND	ND	ND
Trichloroethene (TCE)	**5700**	**710,000**	**460**	ND	ND

Notes:
ug/m^3 = micrograms per cubic meter
ND = Not detected
J = Estimated Value
Bolded results are above the NYSDOH Draft "mitigation" criteria.
Only compounds detected above laboratory reporting limits are listed.
Trip blank leaked, indicating collection of a sample during field sampling and/or transportation of the sample.

mitigation criteria?
why not in indoor air?

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TABLE 2
FORMER STAR FACILITY
MOUNTAINVILLE, NEW YORK
RESULTS OF AIR SAMPLING ANALYSES

Sample Location	IA-1	IA-2	IA-2 Duplicate	IA-3	IA-4	OA-1 (Background)	Trip Blank
Date Collected	09/21/05	09/21/05	09/21/05	09/21/05	09/21/05	09/21/05	
Compound	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3
1,2,4-Trimethylbenzene	2.3	ND	ND	ND	1.1	ND	2.4
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	0.64 J
2-Propanol	ND	ND	ND	ND	ND	ND	4.3
Acetone	92	31	30	ND	5.3	10	17
Benzene	0.68	ND	ND	ND	ND	ND	1.6
Bromomethane	ND	ND	ND	ND	ND	0.74	ND
Carbon disulfide	ND	ND	ND	ND	ND	ND	2.8
Chloroethane	ND	ND	ND	ND	ND	ND	ND
Chloromethane	0.82	ND	ND	ND	0.69	0.75	0.98
cis-1,2-Dichloroethene	1.2	ND	ND	ND	ND	ND	ND
Ethanol	3,200 E	6,600 E	6,600 E	72,000 E	22	57	89
Ethylbenzene	3.9	ND	ND	ND	0.72 J	ND	1.8
Trichlorofluoromethane (Freon 11)	1.6	ND	ND	ND	1.5	1.1	1.5
Dichloro-difluoro-methane (Freon 12)	2.6	ND	ND	ND	2.5	2.7	2.7
Heptane	7.4	ND	ND	ND	ND	ND	ND
Methyl ethyl ketone	5	ND	ND	ND	3.2	ND	2.2
Methyl tert-butyl ether	ND	ND	ND	ND	ND	ND	2.8
o-Xylene	3.6	ND	ND	ND	0.9	ND	2.2
m, p-Xylene	9.6	8	ND	ND	1.8	ND	6.6
Styrene	8.6	ND	ND	ND	0.75	ND	1.2
Tetrachloroethylene (PCE)	2.3	ND	ND	ND	ND	ND	ND
Toluene	12	12	11	ND	0.94	ND	6.6
Trichloroethene (TCE)	**26**	**30**	**30**	ND	ND	ND	ND

Notes:
ug/m^3= micrograms per cubic meter
ND = Not detected
D = reported value outside calibration range. Sample diluted and reanalyzed.
E = Exceeds instrument calibration range
J = Estimated Value
Bolded results are above the NYSDOH Draft "mitigation" criteria.
Only compounds detected above laboratory reporting limits are listed.
Trip blank leaked, indicating collection of a sample during field sampling and/or transportation of the sample.

? cis 1,2 and PCE only detected at IA-1 ? where SS-1 were much lower than @ SS-2

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SS-1 SUBSLAB	
SAMPLE DATE	9-22-05
COMPOUND	ug/m³
1,1,1-TRICHLOROETHANE (TCA)	37
1,1-DICHLOROETHANE	18
4-ETHYLTOLUENE	ND
CHLOROFORM	21
CIS-1,2 DICHLORQETHENE	590
ETHANOL	ND
TETRACHLOROETHYLENE (PCE)	3,500
TRANS-1,2-DICHLOROETHENE	NO
TRICHLOROETHENE (TCE)	5,700

SS-2 SUBSLAB	
SAMPLE DATE	9-22-05
COMPOUND	ug/m³
1,1,1-TRICHLOROETHANE (TCA)	23,000
1,1-DICHLOROETHANE	6900
1,1-DICHLOROETHENE	ND
4-ETHYLTOLUENE	ND
CHLOROFORM	ND
CIS-1,2 DICHLOROETHENE	310,000
ETHANOL	ND
TETRACHLOROETHYLENE (PCE)	36,000
TRANS-1,2-DICHLOROETHENE	4,600
TRICHLOROETHENE (TCE)	710,000

SS-3 SUBSLAB	
SAMPLE DATE	9-22-05
COMPOUND	ug/m³
1,1,1-TRICHLOROETHANE (TCA)	680
1,1-DICHLOROETHANE	440
1,1-DICHLOROETHENE	2,800
4-ETHYLTOLUENE	ND
CHLOROFORM	49
CIS-1,2 DICHLOROETHENE	ND
ETHANOL	440
TETRACHLOROETHYLENE (PCE)	3,000
TRANS-1,2-DICHLOROETHENE	ND
TRICHLOROETHENE (TCE)	460

SS-4 SUBSLAB	
SAMPLE DATE	9-22-05
COMPOUND	ug/m³
1,1,1-TRICHLOROETHANE (TCA)	100
1,1-DICHLOROETHANE	ND
1,1-DICHLOROETHENE	ND
4-ETHYLTOLUENE	5.9
CHLOROFORM	ND
CIS-1,2 DICHLOROETHENE	ND
ETHANOL	14
TETRACHLOROETHYLENE (PCE)	62
TRANS-1,2-DICHLOROETHENE	NO
TRICHLOROETHENE (TCE)	ND

EXISTING WAREHOUSE BUILDING

SS-1,IA-1

SS-2,IA-2

SS-3,IA-3

SS-4,IA-4

MW-3 (DAMAGED)

RESIDENTIAL STRUCTURE

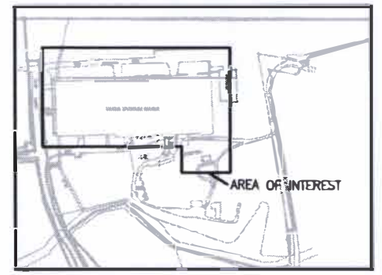
IA-1 INDOOR AIR	
DATE COLLECTED	9-21-05
COMPOUND	ug/m³
CIS-1,2-DICHLOROETHENE	1.2
ETHANOL	3,200 E
HEPTANE	7.4
TETRACHLOROETHYLENE (PCE)	2.3
TRICHLOROETHENE (TCE)	26

IA-2 INDOOR AIR	
DATE COLLECTED	9-21-05
COMPOUND	ug/m³
ETHANOL	6,600 E
TRICHLOROETHENE (TCE)	30

IA-2 INDOOR AIR DUPLICATE	
DATE COLLECTED	9-21-05
COMPOUND	ug/m³
ETHANOL	6,600 E
TRICHLOROETHENE (TCE)	30

IA-3 INDOOR AIR	
DATE COLLECTED	9-21-05
COMPOUND	ug/m³
ETHANOL	72,000 E

IA-4 INDOOR AIR	
DATE COLLECTED	9-21-05
COMPOUND	ug/m³
CHLOROMETHANE	0.69
ETHANOL	22



KEY PLAN

LEGEND

- PROPERTY BOUNDARY
- MW-X — EXISTING MONITORING WELL
- SS-X/IA-X — SUB-SLAB VAPOR SAMPLE POINT AND INDOOR AIR SAMPLING LOCATION

NOTES

1. SAMPLING LOCATIONS SHOWN ARE APPROXIMATE.
2. SITE FIGURE IS BASED UPON SCANNED IMAGE OF A SURVEY MAP PREPARED BY JOHN A. McGLOIN, JULY 25, 1996.
3. ONLY DETECTED COMPOUNDS SHOWN. COMPOUNDS DETECTED IN TRIP BLANK ARE NOT SHOWN AND INCLUDE BENZENE, TOLUENE, ETHYLBENZENE, XYLENES (BTEX) AND FREON.
4. BACKGROUND AMBIENT AIR SAMPLE COLLECTED AT UPWIND LOCATION APPROX. 150 FEET NORTH OF EXISTING WAREHOUSE BUILDING.
5. "E" DESIGNATION SIGNIFIES VALUE EXCEEDS CALIBRATION RANGE OF LABORATORY INSTRUMENTATION.

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SCALE: 1"= 80'
PAPER SIZE: 11" X 17"

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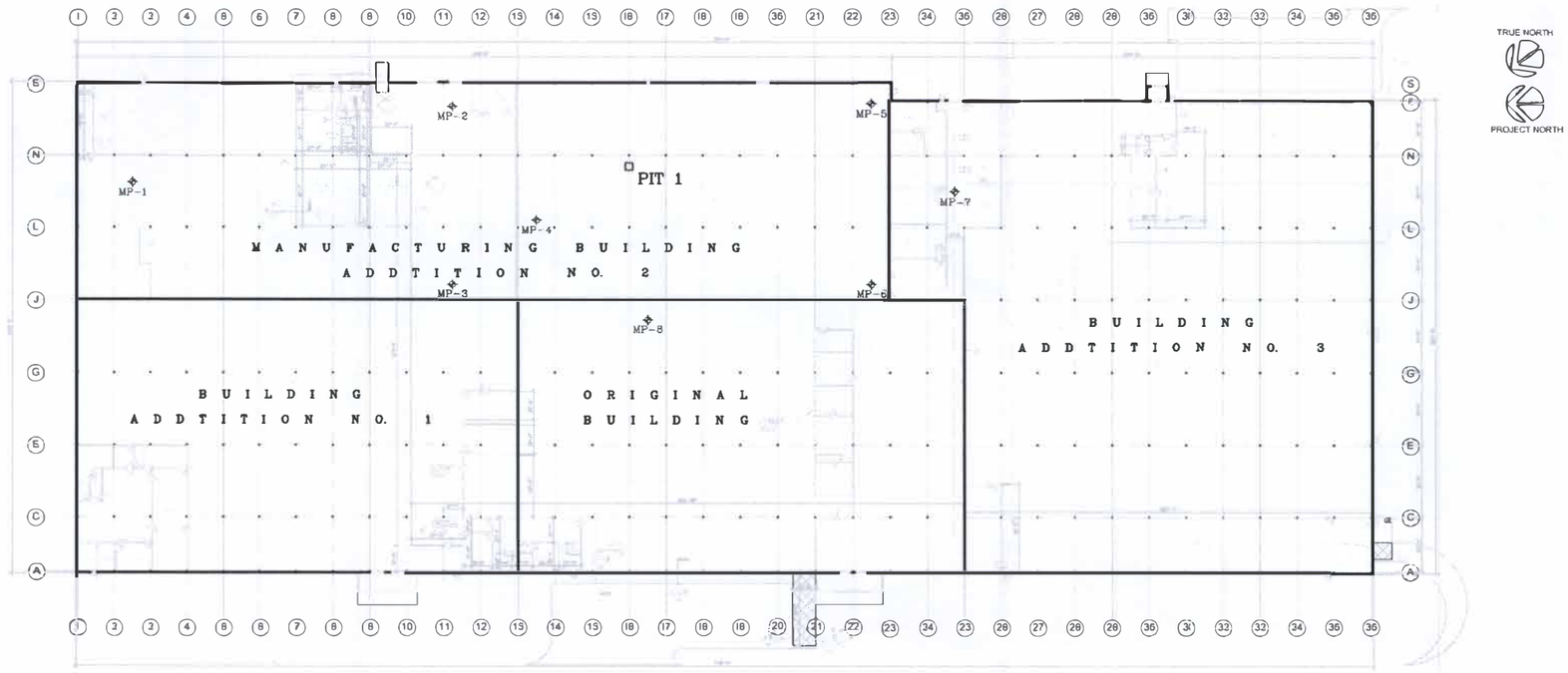
SUMMARYOF RESULTS OF SUBSLAB VAPOR AND INDOOR AIR SAMPLING
FORMER STAR FACILITY
MOUNTAINVILLE, NEW YORK

FIGURE 1 OCTOBER 2005



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Scale: 1" = 80'
Paper Size: 11" x 17"

SOURCE FOR BUILDING FLOORPLAN: RODGER BRALEY

LEGEND

PIT 1 — LOCATION OF PROPOSED SUB-SLAB DEPRESSURIZATION PIT

MP-1 — LOCATION OF PROPOSED MONITORING POINT

——— DENOTES LIMITS OF BUILDING ADDITIONS (BASED ON AVAILABLE HISTORIC INFORMATION)

External Drawing References: I:\Projects\48715- Star Facility\Figures\TB- 11x17.dwg
STARWAREHOUSE2-RVT-FloorPlan-Level1.dwg

FORMER STAR FACILITY
MOUNTAINVILLE, NEW YORK

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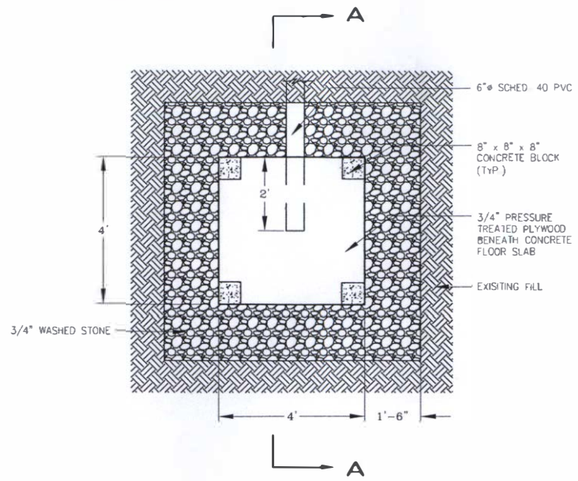
1430 Broadway
New York, New York 10018

	Designed by: JG	Date: 11/8/2005
	Drawn by: SMOR	Scale: AS SHOWN
FIGURE NO. 2	File Name: 2- Phase I Plan and Details.dwg	Project Number: 48715-0000-00000

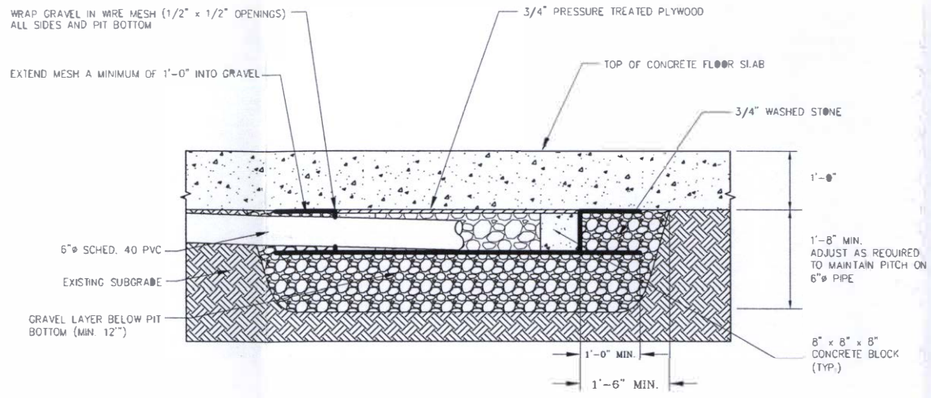
Drawing Title:

SUB-SLAB DEPRESSURIZATION SYSTEM
PHASE I PLAN



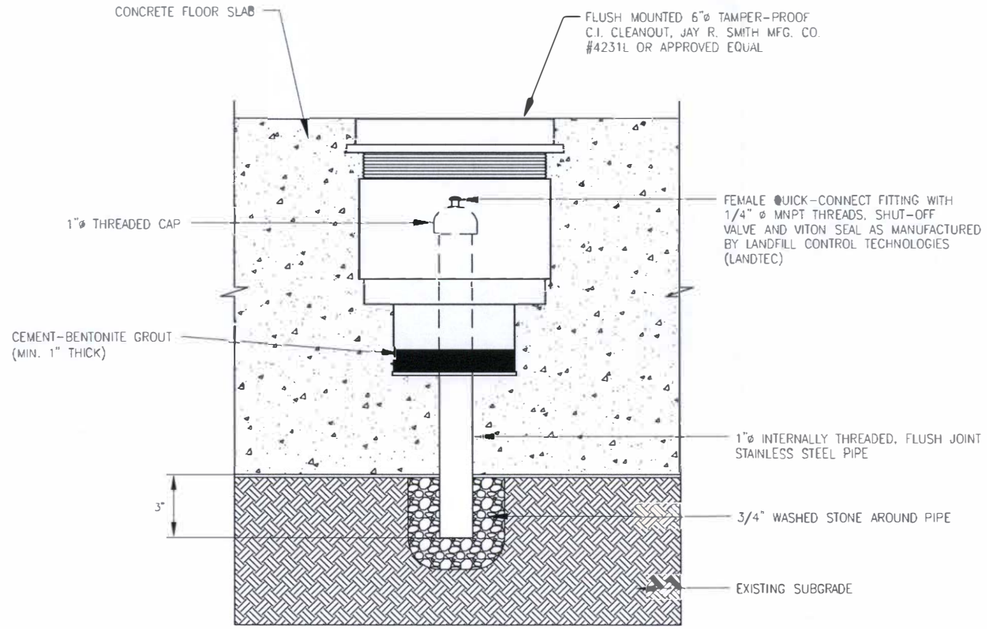
SUB-SLAB DEPRESSURIZATION PIT PLAN VIEW BELOW FLOOR SLAB

NTS



SECTION A-A
SUB-SLAB DEPRESSURIZATION PIT

NTS



MONITORING PROBE DETAIL

NTS

External Drawing References: I:\Projects\48715- Star Facility\Figures\TB- 11x17.dwg
STARWAREHOUSE2-RVT-FloorPlan-Level1.dwg

FORMER STAR FACILITY
MOUNTAINVILLE, NEW YORK

TRC ENGINEERS, INC. 1430 Broadway New York, New York 10018	Designed by: JG	Date: 11/8/2005
	Drawn by: SMOR	Scale: NOT TO SCALE
FIGURE NO. 3	File Name: 2- Phase I Plan and Details.dwg	Project Number: 48715-0000-00000

Drawing Title:

SUB-SLAB DEPRESSURIZATION SYSTEM DETAILS