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October 20, 2008

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
Richard White – Town Manager
Town of Winthrop
One Metcalf Square
Winthrop, MA 02152

Re: Construct ice rink system & dasher boards
Larsen Skating Rink, 46 Pauline Street, Winthrop, MA

Dear Mr. White:

This Firm represents Prism Builders, Inc. ("Prism") the general contractor on the above Project.

After learning about the post-construction floor settlement in the Rink, Prism retained the building forensic engineering firm of Simpson Gumpertz & Heger ("SGH") to investigate the causes of the settlement. As you may know, SGH is one of most highly respected firms of its type in New England.

SGH investigated the post-construction settlement and issued a report dated October 8, 2008, a copy of which is enclosed. SGH concluded that Prism had no responsibility for the post-construction floor settlement. Specifically, SGH concluded that the settlement was caused by the failure of the substrate soils to be sufficiently thawed prior to installation of the floor surface and that Prism was not responsible for the insufficient thawing.

It is my understanding that Winthrop is holding $126,533 of sums due to Prism because of the post-construction floor settlement. In light of the SGH report, please forward that sum to Prism forthwith. Should Winthrop fail to pay Prism forthwith, Prism has instructed me to file suit. In that case, in addition to the principal sum due and interest, Prism will seek its legal fees pursuant to MGL c. 231, §6F, since Winthrop has no defense to payment.

Very truly yours,

Maury E. Lederman

Maury E. Lederman

MEL/htl
Enclosure
cc: Prism Builders, Inc. (w/o enclosure)
Travelers Casualty and Surety Company (w/o enclosure)
Simpson Gumpertz & Heger (w/o enclosure)

390476v1

8 October 2008

Mr. Robert Waxman
Prism Builders, Inc.
107 Audubon Road
Bldg 1/ Suite 19
Wakefield, MA 01880

Project 080485 – Evaluation of Cause(s) of Post-Construction Settlement, Larsen Skating Rink, 46 Pauline Street, Winthrop, MA

Dear Mr. Waxman:

At your request, Simpson Gumpertz & Heger, Inc. prepared this letter summarizing our evaluation, our findings, and our conclusions regarding the cause(s) of the post-construction settlement of the new ice rink system at the above-noted site.

Background

The purpose of our evaluation is to determine the most likely cause(s) of the post-construction settlement observed at the above-noted site.

We received a ring binder from Prism containing documents they received or prepared during the course of the work and several additional documents obtained at our request. We have reviewed the available documents and have relied on them for the development of our opinions. Based on these documents, we understand the following as the relationship of the parties involved in the work:

Parties Involved

- Town of Winthrop (Town) – Owner
- MacLaughlin Management and Design (MMD) – Designer of ice rink modifications for Owner
- Foley Buhl Roberts & Associates (FBR) – Structural Engineer and subconsultant to MMD
- GZA GeoEnvironmental, Inc. (GZA) – Geotechnical Engineer and subconsultant to MMD
- Prism Builders, Inc. (Prism) – General Contractor
- J. DeVincent Corp. (JDV) – Earthwork subcontractor to Prism

Review of Documents

Based on our review of the documents, we determined the following:

- Prism was awarded the project based on the contract documents that included the test pit logs for TP1 thru TP4 and two boring logs GZ1 and GZ2, from the GZA 4 December 2006 Geotechnical Report, all of which showed no frozen ground, Fig 1.

- After demolition of the old rink and excavation to a depth of between 3 and 4 ft below existing finish grade, Prism encountered frozen soil. Prism notified all of the parties of this differing site condition which was not identified by any of the test pits or borings previously completed and reported by GZA in their 4 December 2006 report.

- GZA completed an additional investigation and summarized their findings and recommendations in a report dated 25 May 2007. This investigation included three new borings within the ice rink, B101, B102, and B103, see Fig 1.

  - The borings confirmed the presence of frozen ground, and two of the borings identified a layer of peat below the rink, some of which was also frozen.
  - GZA concluded that there was about 1 to 3 ft of unfrozen sand and gravel fill over 2 to 5 ft of frozen sand and gravel over 3 to 4 ft of frozen peat, over about 2 ft of unfrozen peat in two of the borings, giving a total thickness of frozen soils that varied from 4 to 8 ft and the frozen zone extended to a depth of approximately 6.5 to 10 ft below existing grade or to El 3 ft to El 7 ft.
  - GZA also tested three samples of the peat from the frozen zone and reported natural water content of the samples between 229% and 633%. The report also notes that the Peat samples had several ice lenses in them with thickness of about 1/16 to 1/4 in. each.
  - Ground water level was determined to be at El 9.8 ft, about 1.8 ft below the existing grade at that time.
  - GZA also noted that a test pit was excavated by JDV during their site visits, see Fig 1. GZA reported that at this test pit they observed frozen ground to a depth of 7 to 8 ft below grade beginning at a depth of about 2 ft below the ground surface at that time and extending to about 9 to 10 ft.
  - GZA also reported that the concrete-encased structural steel ties below the former ice rink had heaved upward and that a survey dated 14 May 2007 confirmed that the tie beam near the center of the rink had a high point near the middle of the rink that was about 14 in. higher than at the outside wall.
  - GZA noted that accelerated thawing was underway over half the rink at the time of their report and that thawing penetration can reportedly reach up to 1 ft per day.

- GZA recommended the following in their 25 May 2007 report:

  - Delay reconstruction as long as possible to allow complete thawing and placement of a temporary surcharge. Depending on observed settlement, it may be prudent to close the rink for the upcoming ice sports season.
  - If the above is not acceptable to the Town, the following is a suggested sequence of construction that may mitigate impacts from the settlements that

will occur from thawing of frozen ground, while helping to maintain the faster project schedule desired by the Town.

- Monitor the top of concrete-encased ties for settlement daily throughout construction.
- Excavate the upper unfrozen sand and gravel fill down to near groundwater level. Do not excavate below the groundwater table.
- Perform thawing via a surface heat pipe system, and incrementally excavate sand and gravel fill to expedite the thawing operation. Use excavated material as surcharge.
- Gauge potential thaw depth by driving a smooth rod into the ground until the tip encounters the frozen ground and driving is more difficult.
- Place surcharge of 4 ft of sand and gravel fill above finished grade.
- Once settlement appears to have tapered off, or as directed by the Town due to schedule, remove the surcharge. GZA anticipated that at least 4 to 6 weeks will be required following thawing of the ground.
- Then build the ice rink per drawings and specifications.

- Prism proceeded to follow the GZA recommendations and was issued two change orders by the Town covering the additional work, Change Orders No. 2 dated 13 June 2007 and No. 4 dated 20 July 2007. The change orders specifically included providing only labor to setup and relocate the ground thawing equipment and the furnishing and installation of the insulation blankets and plastic sheeting to insulate the heating pipes. It is our understanding that the equipment and fuel for the thawing process were provided by the Town and that Prism was told, by the Town, that the system could thaw up to 1 ft per day of frozen ground. The unit supplied by the Town was a Heat King HK500 Mobile Glycol Heating System. The system was capable of supplying 364,000 BTU/hr. Prism sequentially applied the system and thawed the ground in sections and then surcharged these areas as follows:

  - Thaw Between Column Lines C – F from 22 May to 30 May 2007 (9 days total)
  - Thaw Between Column Lines A – C from 31 May to 8 June 2007 (9 days total)
  - Thaw Between Column Lines F – J from 13 June to 19 June 2007 (7 days total)
  - Surcharge Between Column Lines C – F from 5 June to 6 July 2007 (4 weeks)
  - Surcharge Between Column Lines A – C from 13 June to 6 July 2007 (2 to 3 weeks)
  - Surcharge Between Column Lines F – J (not yet defined)

- Prism, monitored the work generally as recommended by GZA and in addition completed three supplemental test pits and confirmed that thawing had been completed at the test pit locations. Prism reports the location of the test pits in an email of 25 June 2007 to be between column lines B1-C1, D2-E2, and G1-H1 and the test pit depths were all 13 ft deep below El 15 ft. An undated plan provided to us on 24 June 2008 by Prism has the three test pit locations marked between column lines 5 and 6 and between C-D, E-F, and G-H and indicates the test pits were all 12 ft deep, a copy is attached in the Appendix. Prism confirmed that the test pit locations were as marked on the 24 June 2008 plan they provided and not as previously reported in the email to GZA.

- Prism supplied the survey monitoring data and test pit results to GZA. Prism indicated that no frozen soil was observed and that no organics were intercepted in the test pits they performed.

- GZA then prepared a draft letter report dated 21 June 2007 and finalized the report in a letter dated 6 July 2007 summarizing their review of the data and their recommendations. GZA reported that their review of the survey data indicated that since the first reading of 14 May 2007 (prior to the start of thawing) to the latest reading of 19 June 2007, settlement of up to 2.25 in. occurred. Three of the nine tie beam locations settled greater than 1 in, two locations settled just under 1 in, two locations heaved up to 0.5 in., and two locations did not move. Since surcharge placement, between Column Lines C to F, Settlement Platform 1A settled 1.6 in. and Settlement Platform 2A heaved 1.3 in. Tie beam monitoring points have settled up to 0.75 in. Over the week of 12 June to 19 June 2007, minor heave up to about 0.25 in. was reported at each tie beam location except at C3, which settled between 0.25 in. and 0.5 in. GZA concluded that the data provided was difficult to understand. It was anticipated that the settlement during thawing would be at least equal to the observed prior heave (of the tie beams). Up to 1 ft of heave previously occurred, but total settlement reported was on the order of 1 to 2 in. GZA also reported that they expected settlement of several inches during the surcharge phase due to consolidation of the organic soils. Instead, the data indicate that a small amount of settlement occurred during the surcharge. The heave data was unexpected. GZA stated that the lack of appreciable settlement may indicate that the ground may not have been completely thawed as indicated by Prism or may be due to survey error.

- GZA indicated in their 21 June 2007 Draft Report and the 6 July 2007 Final Report that based on their review they see no continuing trend of settlement. The stability of the data may indicate that the settlement has already occurred. If so, and if the Owner (Town) is confident that the soils are fully thawed, it would be acceptable to remove the surcharge and move it to the next area. GZA also recommended additional test pits observed by their representatives.

- On 21 June 2007 Prism emailed GZA, MMD, and the Town representative S. Driscoll to have GZA coordinate its own efforts to confirm that the ground was thawed based on the GZA 21 June 2007 Draft Report.

- On 25 June 2007, Prism e-mailed the Town representative Mr. S. Driscoll asking for a decision regarding whether the removal of the surcharge from the first area to the next area should proceed.

- On 25 June 2007 the Town representative Mr. S. Driscoll e-mailed a response to Prism the same day in response to the Prism e-mail stating "Proceed."

- Prism then proceeded with the work and completed the final section of surcharge. Prism told us that even after the surcharge was completed they had to excavate under the tie beams and lower them to get them to the proper elevation prior to proceeding with the rink construction.

- The recommendation by GZA to perform additional test pits was not followed, and this decision was not made by Prism.

- Prism told us that the Town started the chillers on 15 October 2007 and then used the rink to the end of December 2007 without operating the heating units under the insulation below the rink. In January or early February 2008, we understand that the Town reported a crack in the slab visible through the ice; about 1 in. of settlement was reported at that time. During the next three months, this condition became worse and by April 2007, the ice was removed and settlement of up to 8 in. was apparent near the center of the rink.

SGH Field Observations

William Konicki of SGH visited the site with you on 4 August 2008. During the site visit we met with representatives of GZA, MMD, and the Town. The following summarizes our observations:

- There is a distinct depression in the concrete slab located approximately between column lines D and F and 3 and 5, Fig 2.

- The representative from the Town indicated that they had measured as much as a 9 in. settlement at the time of the visit.

- At the south side of the rink the concrete floor appeared relatively level from the boards out about 15 ft. The first visible crack was about 14 ft from the boards.

- At the east side of the rink the concrete floor appeared relatively level from the boards out about 30 ft. The first visible crack was about 28 ft from the boards.

- At the north side of the rink the concrete floor appeared relatively level from the boards out about 15 ft. The first visible crack was about 15 ft from the boards.

- At the west side of the rink the concrete floor appeared relatively level from the boards out about 20 ft. The first visible crack was about 6 ft from the boards.

We requested that Prism survey the concrete slab prior to the Town placing ice on the rink. This was completed by Prism on 6 August 2008. The survey data provided by Prism is attached in the appendix. The survey results were plotted and a contour plan of the rink concrete slab surface was prepared by SGH, Fig 2. We also plotted the approximate limit of the first visible cracking away from the boards on Fig. 5.

SGH Analysis of the Extent of Tie Beam Heaving Prior to Thawing Operations

We used the Prism 14 May 2007 survey of the top of the Tie Beam Elevations, taken prior to the start of ground thawing, that was attached to the GZA 6 July 2007 report, to prepare a contour plan of the tie beam elevations. We prepared Fig 3 showing the elevation of the top of the tie beams and contours of the elevation of the top of the tie beams referenced to the project survey datum of El 15 ft, finish floor in the lobby.

We also prepared a contour plan of estimated tie beam heave using an average elevation of El 13.75 ft for the ends of the tie beams at the exterior wall and assuming that this was the as built elevation of the tie beams and no heave of the tie beams occurred at the exterior wall, Fig 4.

Both plans show a distinct zone of heave of the tie beams of more than 2 in. (0.16 ft) located between Colum Lines B and G and between Column Lines 2 and 6. This zone has a skewed axis along a line between C6 and G3. The maximum heave from the survey is about 14 in. (1.2 ft) at a point just north of Column Reference F4. There is a smaller zone of significant heave, greater than 9 in. between Column Lines D and a point midway between F and G and between Column Lines 3.5 and 5. This zone also has a skewed axis that is oriented similar to that described above. There is less than 2 in. of heave recorded in the area from Column Line G to the east limit of the rink between the north and south limit of the rink. There is also an area of less than 2 in. of heave located between the boards at the west end of the rink and a line about midway between Column Lines B and C and extending from the north to the south limit of the rink.

SGH Analysis of Surcharge Settlement Monitoring Data

Settlement during surcharge, after the accelerated thawing was complete, was monitored by Prism and presented in GZA's 6 July 2007 report. The data span from 4 June 2007 to 19 June 2007. The data include two settlement platforms (1A and 2A) and nine monitoring points established on top of the tie beams along the C, D, and E lines. The tie beam monitoring points are identified as C, D, and E – 1, 2, 3, however the numerals do not coincide with the column reference line numbers. The numeral 1 indicates the point is on Column Line 3, numeral 2 indicates the point is midway between Column Lines 4 and 5, and numeral 3 indicates the point is on Column Line 6, Fig 5. We have attached the table of data from the GZA report in the Appendix. We summarized the following data from the GZA report and compare it to our estimate of the heave at each point from Fig 4:

Point	Column Ref No.	Elevation		Delta(D)[1] in.	Heave(H)[2] in.	D/H %
		Initial (ft)	Final (ft)			
1A	NA	11.98	11.85	1.56	4.8[3]	32
D1	D3	14.25	14.06	2.28	6.0	3
D2	D4/5	14.58	14.59	(0.12)	9.9	0
D3	D6	14.07	13.94	1.56	3.8	41
E1	E3	14.26	14.31	(0.60)	6.1	0
E2	E4/5	14.65	14.65	0.00	10.8	0
E3	E6	13.86	13.78	0.96	1.3	74
C1	C3	13.88	13.8	0.96	1.5	64
C2	C4/5	14.25	14.25	0.00	6.0	0
C3	C6	14.15	14.03	1.44	4.8	30

1. *Measured settlement during surcharge period (5/14/07 – 6/19/07).*
2. *Estimated heave of the tie beams. Based on 14 May 2007 survey by Prism (Fig. 4).*
3. *Estimated heave at plate location based on contour plot of the beam heave (Fig. 4).*

All of the monitoring point initial readings were taken before the accelerated thawing began in the area of each monitoring point except for plate No.1A which was initialized after accelerated thawing was performed. Therefore, the displacement recorded is representative of the movement that occurred only during surcharge and after thawing was stopped.

We did not include Settlement Platform 2A in the above summary since this platform was in an area east of the surcharge in place at the time of the monitoring and would not be expected to settle measurably due to the surcharge. In addition during a portion of the period of monitoring, 13 June 2007 to 19 June 2007, the area around this settlement platform was being thawed. The recorded displacement of point 2A was a heave of 1.32 in. between the initial reading on 4 June 2007 and 19 June 2007. During the period of thawing from 13 June 2007 to 19 June 2007 there was no net movement recorded.

The measured settlement of eight of the ten monitoring points are significantly lower than the estimated heave at these points, with measured settlement between 0% and 41% of the estimated heave. The remaining two points (E3 and C1) have measured settlement between 64% and 74% of the estimated heave. Four of the points surveyed with the largest estimated heave showed a small heave or no movement during the surcharge monitoring period. The heave at point D2 is likely only a survey error and we have assumed that the heave recorded at E1 is also a survey error although it is much larger than the typical range of survey error expected.

There is a small isolated area near the southeast corner of the rink with a heave of up to 3.9 in.

SGH Analysis of Extent of Post Construction Settlement and Total Settlement

We used the Prism 6 August 2008 survey of the floor of the rink to prepare a contour plan of the rink slab settlement, Fig 2. The Prism survey is based on a local datum El 0.0 ft at the top of the slab, at the inside face of the boards at the south side of the rink, at Column Line F. Because some of the survey points were above the datum selected by Prism we recomputed the settlements relative to the highest point and established this high point as the reference datum, see Fig. 2.

We determined that the maximum measured settlement was about 10.71 in. (0.89 ft) at the intersection of Column Line E and Column Line 4. There is a distinct zone of settlement between Column Line B and a point midway between Column Lines F and G and between column Lines 2 and 6. This zone has a skewed axis along a line between C6 and F3. There is a smaller zone of significant settlement, greater than 6 in., between Column Lines C and a point midway between Column Lines E and F and between Column Lines 3 and 6. This zone also has a skewed axis that is oriented similar to that described above. There is a significant area with less than 1 in. of settlement from Column line G to the east limit of the rink and between the north and south limit of the rink. There is a smaller area with less than 3 in. of settlement from Column Line B to the west limit of the rink.

We also prepared the following table comparing the post construction settlement and also the total settlement due to surcharge (Delta) plus the post construction settlement (S), to the measured heave of the tie beams (H):

Point	Column Ref No.	Delta (D) in.[1]	Heave(H) in.[3]	Settlement(S) in.[4]	S/H %	(S+D)/H %
1A	NA	1.56	4.8	5.5	114	147
D1	D3	2.28	6.0	4.5	75	113
D2	D4/5	(0.12)[2]	9.9	6.5	66	66
D3	D6	1.56	3.8	5.5	145	186
E1	E3	(0.60)[2]	6.1	6.5	106	106
E2	E4/5	0.00	10.8	9.0	83	83
E3	E6	0.96	1.3	4.0	307	381
C1	C3	0.96	1.5	4.5	300	364
C2	C4/5	0.00	6.0	6.5	108	108
C3	C6	1.44	4.8	7.5	156	186

Note:

1. *Measured settlement during surcharge period 5/14/07-6/19/07*
2. *Measured values of Delta (D) are negative indicating heave; a value of zero (0) is used in the computed ratio (S+D)/H.*
3. *Estimated heave of the tie beams, based on 14 May 2007 survey by Prism.*
4. *Measured settlement based on 6 August 2008 survey by Prism.*

We determined that nine of the ten points tabulated have a total settlement (S+D) that is greater than 80 % of the measured heave, only one point (D2) has a total settlement that is less (66% of the measured heave). Eight of the ten points have total settlement (S+D) larger than the measured heave and two points have a total settlement of more than three times the measured heave.

We also determined that eight of the ten points tabulated have a post construction settlement (S) that is greater than 80% of the measured heave. Only two points (D1 and D2) have a post construction settlement that is less (75 and 66 % respectively). Seven of the ten points have a post construction settlement equal to or larger than the measured heave and four of these points have a post construction settlement that is significantly larger than the measured heaved. The average post construction settlement of the eight monitoring points, excluding E3 and C1, is 106% of the heave at these same points.

SGH Analyses of Ground Thawing

We completed an analysis of the time and energy, as heat, needed to thaw up to 1 ft of ground per day, to thaw 5 ft of frozen sand and gravel fill, and the additional 3 ft to 4 ft of frozen peat reported by GZA, Prism, and JDV.

The information available for the Heat King HK500 unit used at the site is limited to only the heater capacity of the unit (364,000 BTU/hr) and the maximum thawing area of 11,200 sq ft, a copy is attached in the Appendix. We located a comparable unit produced by another manufacturer for comparison, the Thawzall S3000, a copy of the data sheets are attached in the Appendix. The Thawzall Ground Heater S3000 has a gross heat capacity of 385,000 BTU/hr, a net heat capacity of 321,000 BTU/hr, and a maximum thawing area of 6,000 sq ft, depending on the soil type and accessories installed on the unit. The normal operating temperature of the Thawzall unit is advertized as 100 to 180 degrees F. The Thawzall unit is advertised to thaw up to 1 ft per day, depending on soil conditions.

We assumed the equipment was installed over the largest single area thawed by Prism, between either Column Lines C to F and F to J. The largest area thawed is about 80 ft x 90 ft, or about 7,200 sq ft. Assuming the entire maximum net heat capacity is applied to the area without heat loss upward to the air, the average heating rate is about 1,070 BTU/day/sf. We also computed the average heating rate for the system when applied to the smallest area thawed, between Column Lines A to C. The smallest area thawed is about 90 ft by 32 ft, or 2,880 sq ft. Assuming the unit is operated at the maximum net heat capacity the average heating rate is about 2,675 BTU/day/sf.

We than assumed that the soil and the ice in the soil pores is at or close to 32°F and only the phase change of the ice from solid to liquid must be completed to thaw the soil and pore water. In this case, the required heat input for a cubic foot of soil is equal to the weight of water (as ice) in the soil times the latent heat of melting of ice (fresh water ice) of 144 BTU/lb.

For a typical moist sand and gravel fill that is well compacted, the approximate weight of water in the soil would be in the range of 5 to 7 lbs/cf. To thaw a one foot thickness of this material per day requires between 720 and 1008 BTU/day/sf, or about 1,000 BTU/day/sf on average. This matches the advertised 1 ft per day rate of thawing for the Thawzall S3000 and should be similar for the Heat King HK500 unit used on the site. This also matches the average heating rate applied to the largest area thawed on the site of about 1070 BTU/day/sf. Based on this analysis we determined that 5 ft of frozen compact sand and gravel could be thawed in about 5 days in the two largest areas thawed between Column Lines C to F and F to J and in about 2 days for the smallest area thawed between Column Lines A to C.

We then evaluated the heating needed to thaw the frozen peat layer. We assumed the water content is no less than 200% and as high as 600% as reported by GZA. We assumed a specific gravity of solids of 1.5 based on data for silty and sandy peat from Reference [1] and assuming a saturated soil condition. We computed a void ratio of 3.0 and 6.0 respectively, a dry unit weight of about 23 pcf to 9.4 pcf respectively, and the weight of water in a cubic ft of saturated peat to be about 47 lbs to 56 lbs, respectively. The required heat input to thaw 1 cubic ft of frozen peat is 6,700 BTU's for a water content of 200% and 8,000 BTU's for a water content of 600%. Trying to thaw 1 ft per day of frozen peat requires a heat input of between 7,000 and 8,000 BTU/day/sf. This is about seven to eight times the heating rate of the unit when used on the two largest areas thawed. At the heating rate available for the unit used and when applied to the largest area thawed, only 0.125 ft of frozen peat would thaw in a day, producing an estimate of 28 additional days to thaw a 3.5 ft thickness of frozen peat. When applied to the smallest area thawed, only 0.33 ft of the frozen peat would thaw in a day producing an estimate of about 11 additional days to thaw a 3.5 ft thickness of frozen peat.

We also performed a one-dimensional thawing computation following USACOE TM 5-852-6, Arctic and Subarctic Construction, Calculation Methods for Determination of Depths of Freeze and Thaw in Soils, January 1988. The methodology allows an estimate of the time to thaw a given soil layer once the soil properties are known and the thawing index of the air above the soil is computed from the heat input versus time. We selected soil properties consistent with the soil descriptions reported by GZA and summarized above. We computed that with a constant uniform heat input under the temporary insulation blankets at a constant temperature at the soil surface of 200°F (close to the advertised normal operating temperature range of the Thawzall S3000 unit) that a 5.5 ft thick layer of frozen sand and gravel fill could be thawed in about 7 to 8 days; to thaw the additional 3.5 ft thick layer of frozen peat with a water content of 200% would require at a minimum an additional 34 days and could be longer if peat with the larger water content (600%) were present. We determined that to thaw the Fill and the 3.5 ft of organics would take at least 41 days.

Discussion

It is clear that the frozen ground was not anticipated in the contract documents and that the Town and Prism dealt with this discovery as required by the contract by issuing two change orders that amended the contract. Prism then completed the additional work under the change orders and in accordance with the direction provided by GZA and the Town.

Prism was not the designer of the thawing operation and was apparently taking direction from both GZA and the Town. The Town provided the equipment and the fuel and Prism provided the insulation and the labor needed to install and relocate the components as needed. It is still not completely clear who determined when the system was to be moved from location to location. The timing of the thawing operations does indicate that if the thawing rate of 1 ft per day was accurate, presumably as assumed by Prism based on input from the Town, about 9 ft of ideal soil could be thawed in the 9 days it was applied to the largest area between Column Lines C to F, about 10 ft or more between Column Lines A to C where it was used at about 2.5 times the average heating rate and for the remaining area thawed between Column Lines F to J about 7 ft of ideal soil could be thawed where it was used for only 7 days.

Our analyses support the reported rate of thawing of 1 ft per day of ideal soil and that the ideal soil to obtain a thawing rate of 1 ft per day is a sand and gravel fill with about 7 lbs of water per cu ft of soil. At locations where the frozen peat is present under the sand and gravel fill, it is not likely that much if any of the frozen peat was thawed by this process. This is particularly true in the two largest areas thawed (between Column Lines C to F and F to J) where the heating rate was lowest. In the smallest area thawed (between Column Lines A to C) where the heating rate was highest perhaps about 1.5 ft of peat may have been thawed.

Along the edges of the rink, there may have been some edge effects that reduced the initial thickness of frozen ground and/or the amount of frozen ground present at the start of thawing. This may have allowed the edges to thaw more completely than the center of the rink. Based on the test pit results reported by Prism and by the GZA borings on the south side of the building, it is also possible that organic soils are not continuously present at shallow depths on the south side of the rink, which would explain why the soils in this area were observed to be completely thawed and no organics were observed in the test pits excavated by Prism to confirm that the ground was thawed.

The monitoring results tend to support the premise that the frozen organic soils were not thawed prior to surcharging and therefore very little settlement occurred during this stage of the work. The measured settlement of between 1 in. and 2.2 in. is likely due to recompression of the previously preloaded and preconsolidated unfrozen peat below the frozen zone during the surcharge. The locations near the center of the rink that have little to no measured settlement may be located over areas of peat that were almost completely frozen, with little to no thickness of unfrozen peat to be recompressed under the weight of the surcharge.

The extent of heave of the original rink, based on the tie beam heave measurements, is superimposed over the extent of the post construction settlement of the rink slab on Fig 5. It is clear that the extent of heave and settlement correspond well. The locations of largest heave and largest settlement do not match, but this may be due to the lack of a settlement measurement by Prism at Column F4. We suspect that this value, if obtained, would increase the correlation of the location of maximum heave and maximum settlement. Our evaluation also indicates that the settlement during surcharging did not account for more than about 30% of the measured heave and that the average post construction settlement can account for all of the measured heave at eight of the ten monitoring points (average S/H = 106%). This is consistent with the premise that most of the prior heave of the rink was likely related to the ice lenses in the frozen peat and the thawing and surcharging of the sand and gravel fill produced very little settlement. We expect that as the peat subsequently thawed the weight of the soil above was sufficient to prevent the formation of voids where the ice lenses previously existed, closing these gaps as the ice thawed. At the remaining two monitoring points (E3 and C1) where the post construction settlement is much larger than the measured heave (S/H = 300%) it is not clear what produced this difference. In addition, the monitoring points in the area of largest heave (D2 and E2) recorded little to no settlement during surcharging but the post construction settlement indicates that not all the original heave was recovered as post construction settlement. The cause of this difference is also unclear.

The post construction settlements also likely include some secondary consolidation of the previously preloaded and preconsolidated peat due to the effective pressures from the final rink construction over the one year period since construction was completed. This would tend to make the average post construction settlement somewhat larger than the measured heave and is consistent with the average ratio of settlement to heave (S/H = 106%) we computed for eight of the ten monitoring points.

GZA borings 101 and 102 confirmed at least 3 ft of frozen peat below the fill and are located in the area of largest heave and largest post construction settlement, see Fig 5. GZA boring 103 confirmed up to 4 ft of frozen soil but showed no organics to the bottom of the boring at 9 ft below the rink level and is located in an area of minimal heave and minimal post construction settlement. The test pit excavated on 11 May 2007 between Column Lines G and H and 5 and 6 confirmed 7 to 8 ft of frozen soil with no organics reported and is also located in an area of minimal heave and minimal post construction settlement. All of the above are located in areas that had the lowest heating rate during thawing. This also supports our determination that areas without frozen organics were completely thawed and areas with frozen organics were not thawed. Similarly the test pits by Prism also confirm this determination.

The reported timing of the development of the settlement of the new rink about 3 to 4 months after it was put in service and the accelerated rate of settlement increase after the new heating elements under the insulation were reportedly turned on in January or February 2008 is also consistent with a rapid thawing of the remaining frozen peat, which then allowed settlement to rapidly occur.

Conclusions

We conclude the following:

1. Prism was taking direction from both GZA and the Town in implementing the accelerated ground thawing process and the means and methods used were selected,

specified, and/or provided by others, for who Prism was not responsible, and merely installed and relocated as needed by Prism.

2. Prism, either by direction from or based on the thawing rate of the soil provided by others, for whom Prism was not responsible, relocated the equipment to allow for 7 to 9 ft or more of thawing to occur.

3. The thawing rate of 1 ft per day reported by Prism and GZA is accurate only for an ideal soil consisting of a sand and gravel fill with up to 7 lbs of water per cubic ft.

4. The heat capacity of the portable Heat King HK 500 heating system provided by the Town was not capable of thawing 1 ft per day of frozen peat and more likely only capable of thawing 0.1 ft to 0.3 ft per day of frozen peat depending on the water content of the frozen peat and the heating rate applied.

5. It is highly likely that most of the frozen peat, particularly near the center of the rink, was not thawed during the period of accelerated thawing and subsequently thawed and compressed after the construction work was completed and the new below slab heaters were turned on.

6. Accelerated thawing of the areas with frozen peat would have required an additional 11 to 28 days depending on the heating rate used and the water content of the frozen peat.

Sincerely yours,

William P. Konicki

COMMONWEALTH OF MASSACHUSETTS
WILLIAM P. KONICKI 32170
REGISTERED PROFESSIONAL ENGINEER

William P. Konicki, P.E.
Senior Principal
O:\DATEFILE\2008\Konicki, W\WPK74-Lfas.doc

Cc: Maury E. Lederman – Murtha Cullina, LLC

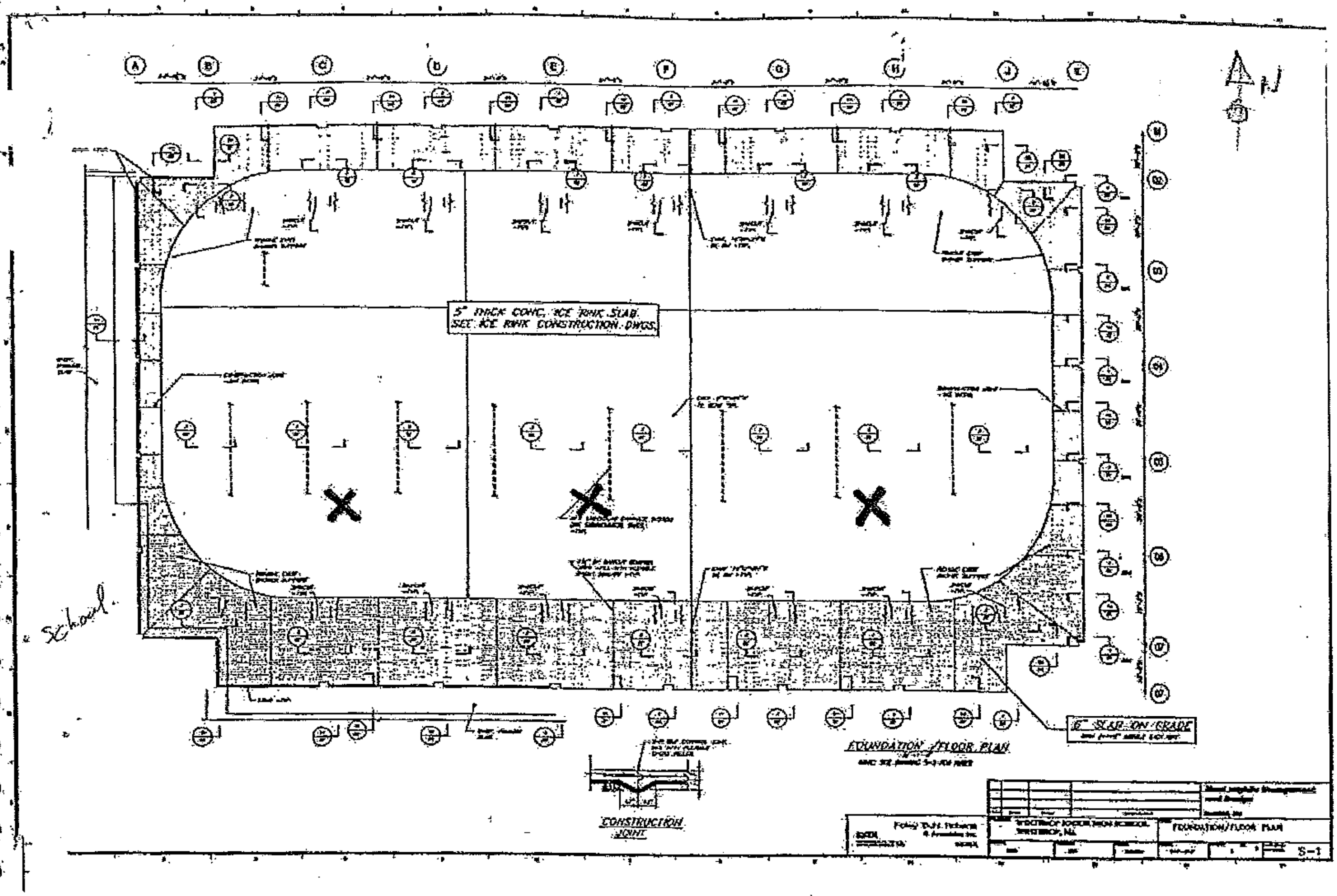
Attachments

Figure 1 – Subsurface Exploration Summary and Location Plan
Figure 2 – Plan of Slab Settlement Contours
Figure 3 – Plan of Heaved Tie Beam Elevation Contours
Figure 4 - Plan of Tie Beam Heave Contours
Figure 5 – Composite Plan of Rink Heave, Settlement, and Cracking

Appendix
Prism 24 June 2008 Test Pit Location Plan
Prism 6 August 2008 Settlement Survey Data
Prism 14 May 2007 Heave Survey of Tie Beams
GZA Summary of Post Thaw Settlement Data
Heat King HK500 Mobile Glycol Heating System Data Sheets
Thawzall S3000 Ground Heater Data Sheets

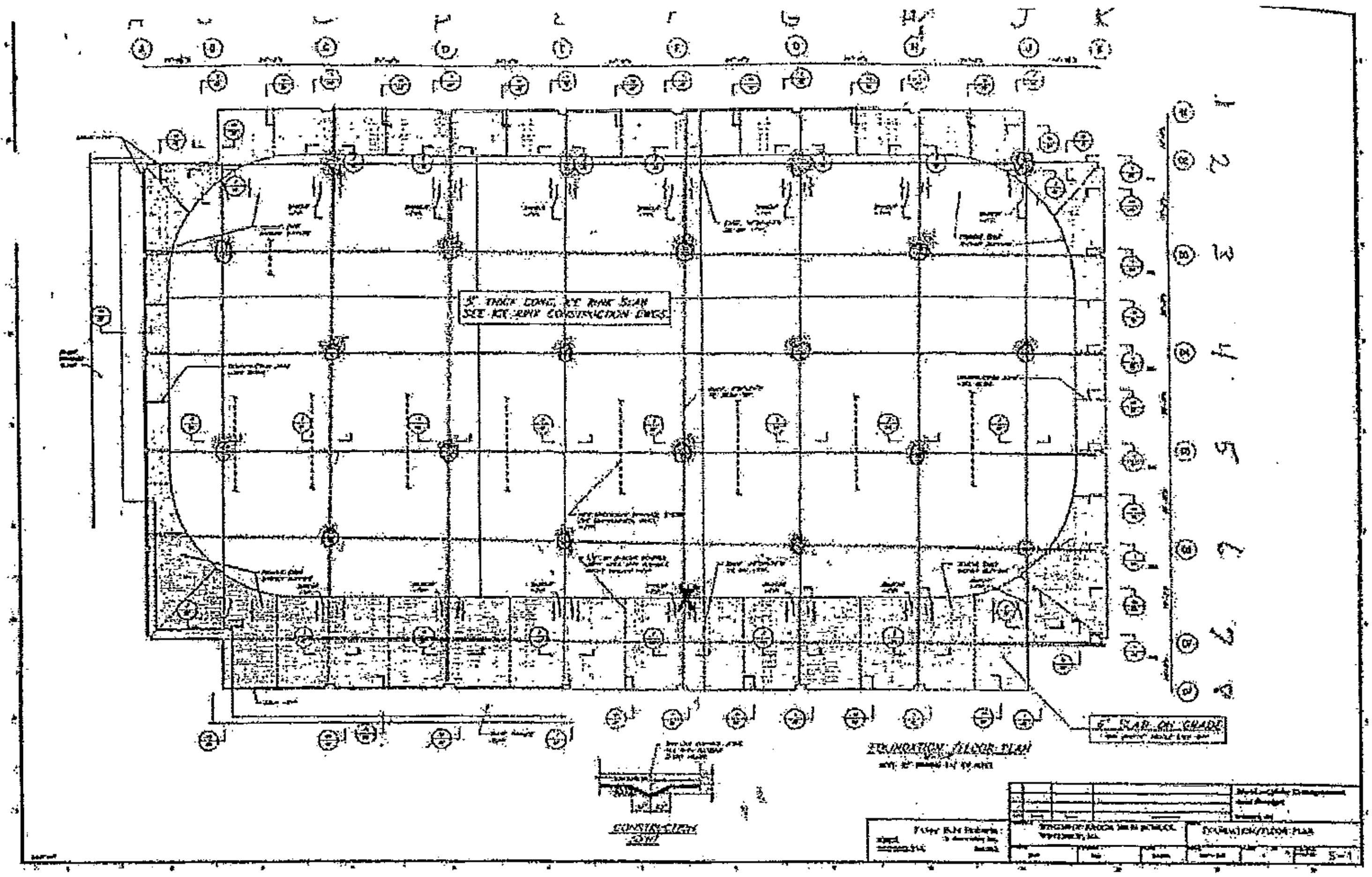
References

1. Gunaratne, W. Stinnette, P., Mullins, A.G., Kuo, C.L. and Echelberger, W.F., "Compressibility Relations for Peat and Organic Soil," ASTM Journal of Testing and Evaluation, Vol. 26, No. 1 January 1998, pp. 1-9.

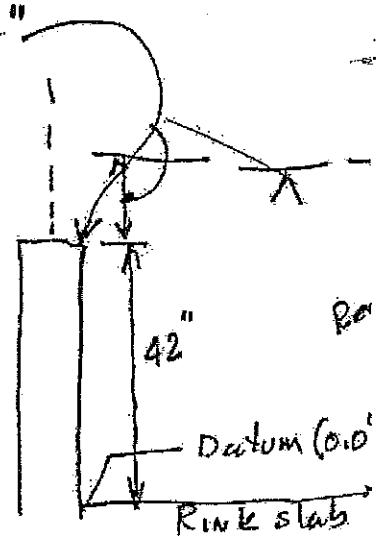


X = TEST PIT LOCATION, DEPTH OF 12'±

Prism Test Pit
Locations to Confirm
Frozen ground Thawed



* TOP OF BOARD ELEVATION 15.75"



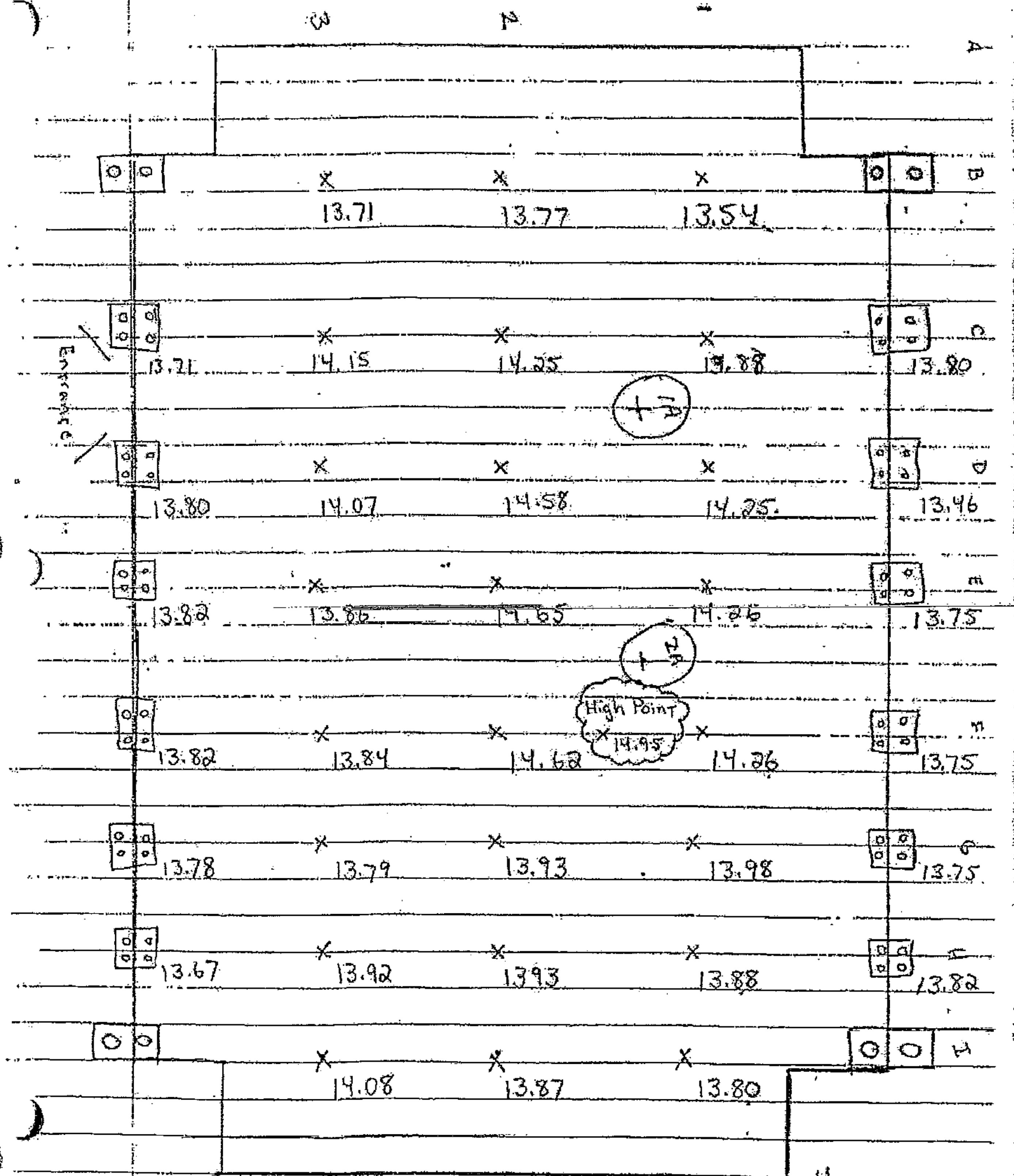
B3 - 59.75
B5 - 60.00
C2 - 59.25
C4 - 63.75
C6 - 64.50
D3 - 61.50
D5 - 64.13
E2 - 59.75
E4 - 67.75
E6 - 60.75

F3 - 62.00
F5 - 58.50
G2 - 57.75
G4 - 58.00
G6 - 58.00
H3 - 57.25
H5 - 58.00
J2 - 57.00
J4 - 57.00
J6 - 58.50

Prism 6 Aug 08 Survey

14 May 2007

From July 6, 2007 GZA Report



Finish Floor at Lobby
15.00

Prism survey of Tie Beams.

LARSEN RINK *
POST-THAW SETTLEMENT DATA

	6/4/07	6/5/07	6/6/07	6/7/07	6/8/07	6/12/07	6/13/07	6/14/07	6/15/07	6/18/07	6/19/07
1A	10.48	10.36	10.39	10.38	10.36	10.34	10.36	10.34	10.34	10.34	10.35
2A	10.40	10.47	10.52	10.50	10.53	10.52	10.51	10.52	10.50	10.50	10.51
D1	10.08	10.01	10.01	10.04	10.07	10.01	10.08	10.05	10.05	10.05	10.06
D2	10.64	10.58	10.58	10.60	10.60	10.60	10.57	10.59	10.58	10.58	10.59
D3	10.00	9.92	9.92	9.98	9.96	9.90	9.94	9.94	9.94	9.94	9.94
E1	10.35	10.29	10.29	10.30	10.31	10.28	10.28	10.30	10.29	10.30	10.31
E2	10.68	10.64	10.64	10.67	10.67	10.65	10.63	10.64	10.64	10.65	10.65
E3	9.80	9.73	9.73	9.77	9.78	9.75	9.72	9.74	9.76	9.78	9.78
C1	--	--	--	--	--	--	9.80	9.79	9.80	9.80	9.80
C2	--	--	--	--	--	--	10.25	10.24	10.24	10.24	10.25
C3	--	--	--	--	--	--	10.06	10.04	10.03	10.03	10.03

**Benchmark used = 8.00 (Measurements are to a mark on measurement platform poles)

	5/14/07	6/4/07	6/5/07	6/6/07	6/7/07	6/8/07	6/12/07	6/13/07	6/14/07	6/15/07	6/18/07	6/19/07	Delta (in)
1A		11.98	11.88	11.89	11.88	11.86	11.84	11.86	11.84	11.84	11.84	11.85	1.56
2A		11.90	11.97	12.02	12.00	12.03	12.02	12.01	12.02	12.00	12.00	12.01	(1.32)
D1	14.25	14.08	14.01	14.01	14.04	14.07	14.01	14.03	14.05	14.05	14.05	14.06	2.28
D2	14.58	14.64	14.58	14.58	14.60	14.60	14.60	14.57	14.59	14.58	14.58	14.59	(0.12)
D3	14.07	14.00	13.92	13.92	13.98	13.96	13.90	13.94	13.94	13.94	13.94	13.94	1.56
E1	14.26	14.35	14.29	14.29	14.30	14.31	14.28	14.28	14.30	14.29	14.30	14.31	(0.60)
E2	14.65	14.68	14.64	14.64	14.67	14.67	14.65	14.63	14.64	14.64	14.65	14.65	0.00
E3	13.86	13.80	13.73	13.73	13.77	13.78	13.75	13.72	13.74	13.76	13.78	13.78	0.96
C1	13.88	--	--	--	--	--	--	13.80	13.79	13.80	13.80	13.80	0.96
C2	14.25	--	--	--	--	--	--	14.25	14.24	14.24	14.24	14.25	0.00
C3	14.15	--	--	--	--	--	--	14.06	14.04	14.03	14.03	14.03	1.44

**Benchmark Used = 15.00 (Measurements are to base of measurement platforms

Notes: 1. Data provided by Prism Builders on 6/19/07 and 6/21/07.
2. Points 1A and 2A are settlement platforms, other points are on the top of concrete-encased tie beams.

HEAT KING

CROWN CONSTRUCTION EQUIPMENT

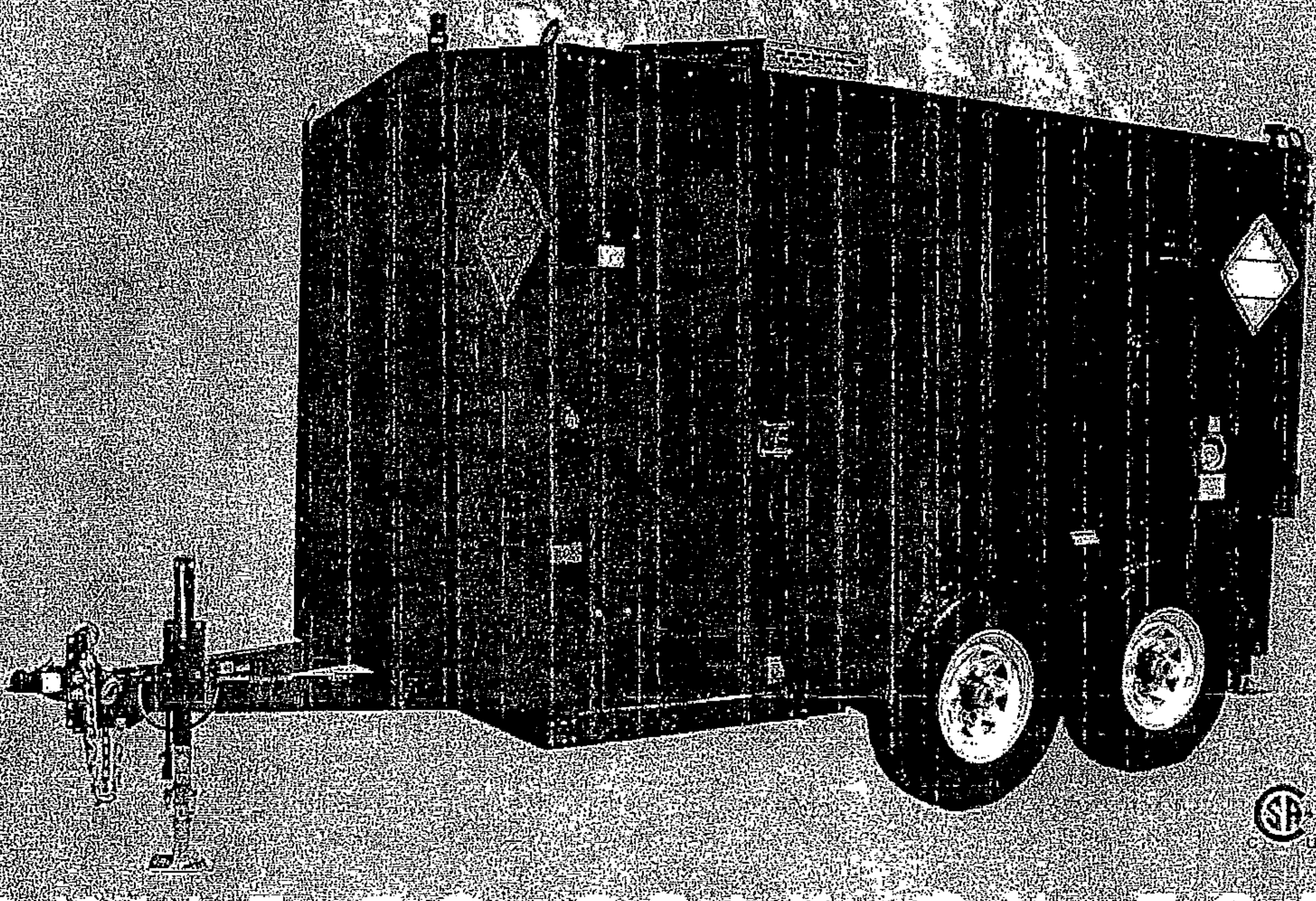
HK500

The HK500 Mobile Glycol Heating System

The HK500 is the most powerful of the Heat King family. This unit was designed for big jobs in mind. Quiet and efficient yet powerful enough to thaw 11,200 ft² of ground, cure 22,400 ft² of concrete or provide temporary heat for up 15,000 ft².

Features:

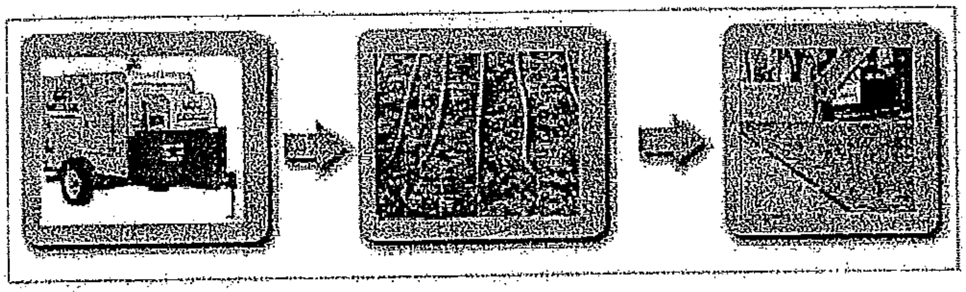
- Thaw up to 11,200 ft²
- Cure up to 22,400 ft²
- Temporary Heat up to 15,000 ft²
- Computer controlled System
- Digital Temperature Monitoring
- Large Glycol Reservoir
- Large Access Doors
- Double Loop Technology
- Enclosed Electric Hose Reel
- CSA / UL Certified



BUILT TO STAY ON TOP

800-328-7094
Thawzall
MagTec
Ground Heater
Curing Blankets
Power Blanket
Frost Fighters
LB White
Search
800-328-7094

Ground Heater - Thawzall Ground Heating Systems



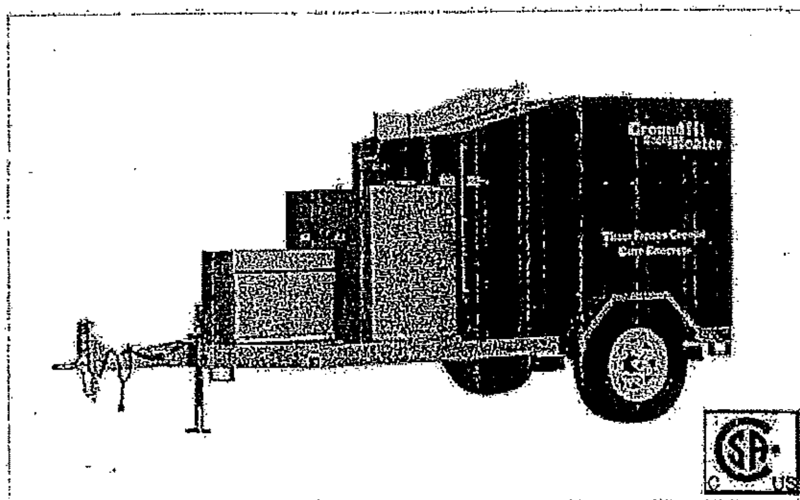
All Thawzall ground heater models are fully contained ground heating systems which use a boiler system to heat a biodegradable, environmentally safe propylene glycol mixture. The propylene glycol mixture is then circulated through industrial hydronic hose via the Thawzall ground heater unit to efficiently heat the soil and soften the frozen ground for digging, concrete pouring, and other cold weather constructing needs.

Thawzall ground heater can thaw up to 12,000 square feet of soil per set-up with hydronic hose at 24" on center hose spacing. Optimum ground heating is achieved with hydronic hose at 16" on center spacing. Depending upon soil conditions, a Thawzall ground heater can thaw up to 12" of frost soil every 24 hours. This ground heating process is environmentally-friendly since the heat transfer fluids never leave the ground heater system. That means only heat penetrates the ground to thaw the soil. The flexibility of the hydronic hose used with the ground heater allows you to custom fit your layout to any cold weather application. Thawing trenches is also possible with the Thawzall ground heater by laying your hydronic hose in long parallel lines. If the hose is laid along side footings, the Thawzall ground heater will keep them frost free and will keep footings from heaving due to frost penetration.

For effective use of the Thawzall ground heater system, lay hose in loops, 24" on center, over area to be thawed (6,000 square feet per set). Cover the hose with construction blankets to improve efficiency. With this set-up, expect the Thawzall ground heater to thaw up to 12" of frost soil depth per 24 hour period in most soil conditions.

Granite City Rental is your ground heater rental solution. The hydronic heat produced by the Thawzall ground heater system can heat soil quickly and efficiently to keep your cold weather construction project on schedule. Call Granite City Rental today for your ground heater rental. Granite City Rental has all the construction heat rental equipment you need for your winter construction project. Call (800) 328-7094 to schedule you ground heater rental today.

S3000



Thaw ground - quickly, easily, and economically

- 3,000 - 4,500 sq. ft. standard
Varies based on soil conditions. Complete a Ground Heaters' Thaw Cost Plan.

Cure concrete - in cold weather with confidence

- up to 6,000 sq. ft. standard
Varies based on application. Complete a Ground Heaters' Cure Cost Plan.

Up to 100 hours run-time

Engineered for reliable, trouble-free start

Easy to operate

Economical

Dependable

Built Tundra Tough™

84% heater efficiency - highest in the industry

Thaw and cure large areas:

Thaw up to 1 foot deep/day(dependent on conditions)

Set, finish and cure concrete like it's summer

Protect newly poured concrete from frost

Dimensions and capacities

Length	181"
Width	91"
Height	93"
Ground clearance	12"

Frost Prevention (std equipment)	up to 9,000 sq ft
Frost Prevention (w/ accessories)	up to 27,000 sq ft
Air heat capacity (w/ accessories)	535,000 sq ft
Performance monitoring system	yes

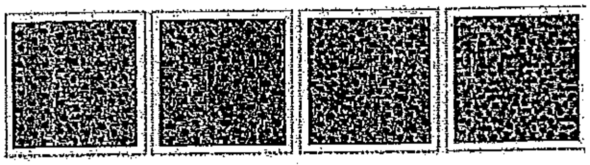
800-328-7094
Thawzall
MagTec
Ground Heater
Ground Heater E1100
Ground Heater E2200
Ground Heater E3000
Ground Heater S3000
Artic Bear Cub
Artic Bear HD
Artic Bear XHD
Pump Pack
Hose Handling System
Remote Manifold
Booster Pump
Red Wave Insulation
Blankets
HX-Series Heat
Xchangers
Pure Hydronic Air
Heater
Dryvex MC5200
Dryvex R110
Dryvex R55
Dryvex AM3000
How It Works, Curing
How It Works, Thawing
Curing Blankets
Power Blanket
Frost Fighters
LB White
Search
800-328-7094

How It Works-THAWING

The versatile Ground Heater® - solves cold weather construction problems! Ground Heaters®' dry, radiant, hydronic heat is economical and easy to use!

- Thaw frozen ground for excavation and concrete placements
- Thaw up to 1 foot deep per day!
- Accurately quote winter construction jobs
- Deliver projects on time
- Keep crews and equipment working all winter
- Protect exposed footings from frost heaving
- No need to build temporary roads.. adjacent ground stays frozen

Problem:
Ice in the soil!
Know Your Dirt! Ice Content of Frozen Soils



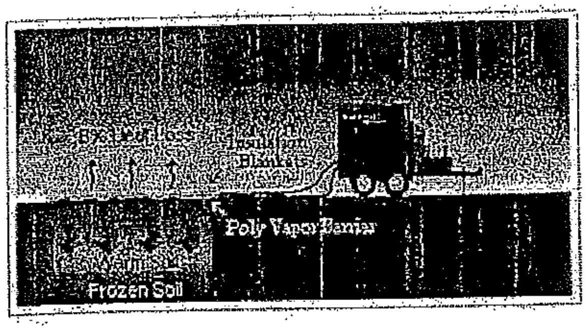
Gravel	Sand	Clay	Silt
5 to 7 lbs. in 1 cu. ft.	14 to 18 lbs. in 1 cu. ft.	16 to 22 lbs. in 1 cu. ft.	15 to 52 lbs. in 1 cu. ft.
Up to 1,001 Btu's required to melt ice	Up to 2,574 Btu's required to melt ice	Up to 3,146 Btu's required to melt ice	Up to 7,436 Btu's required to melt ice

Melting ice requires 143 Btu's per pound!

Frost Facts

- Soil does not freeze
- Water in soil freezes
- Ice binds soil
- Melting ice requires 143 Btu's per pound!

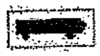
Ground Heater® System



94% of the **heat** is conducted into frozen ground!

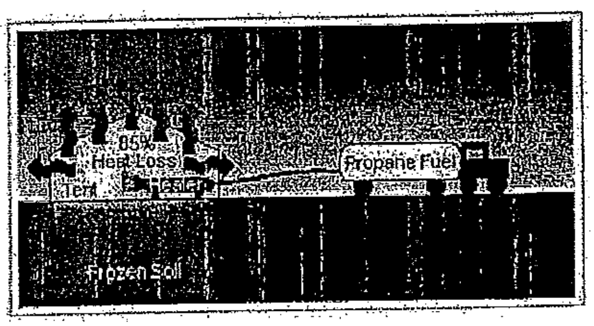
- Thaws at a fast rate - typically 1 ft. deep per day
- Achieves up to 10' thaw depth per application
- No temporary enclosure to build
- Uses fuel efficiently; fuel costs per cu. ft. thawed:

 = less than 1¢

 = 37¢

- Requires minimal supervision
- Utilizes BTU's efficiently with minimal heat loss

Hot Air System



Only 15% of the **heat** is conducted into the frozen ground!

- Limited thaw depth
- Requires building costly temporary enclosures
- Requires noisy propane heaters
- Creates outrageous propane bills
- Emits noxious fumes into enclosure
- Requires constant supervision

Thawing 6,000 sq. ft., 3 ft. deep

System	Hot Air 	Ground Heater	
Time	25 days	OWN 3 Days	RENT 3 Days
Equipment/labor/ materials cost	$2,877	$530	$1,436

Fuel Cost	$6,600	$132	$132
Total Job cost	$9,477	$662	$1,568
Cost/cu. ft.	**52.7¢**	**3.7¢**	**8.7¢**

NOTE: Figures above are based on average rates/costs. Actual rates/cost incurred may vary depending upon geographical location.

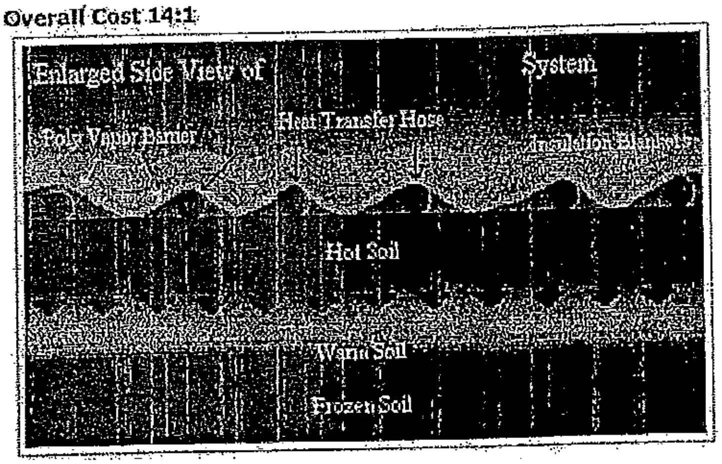
Ground Heater®  **out-performs hot air!**

Thawing 6,000 sq. ft., 3 ft. deep

Time 8:1

Fuel Cost 50:1

Overall Cost 14:1



1. Prepare Site Scrape snow and ice from thaw site.
2. Position Heat Transfer Hose Space hose 2 feet on center over thaw site area. A closed system, only heat goes into ground.
3. Lay Poly Vapor Barrier Place minimum 3 mil poly vapor barrier to contain water vapor.
4. Prevents loss of heat
5. Keeps soil moist for better heat conduction
6. Keeps hoses and blankets clean
7. Place Insulation Blankets
8. Prevent heat loss and direct heat into ground. Requires 2 to 3 layers of high R value blankets.

Thaw fast - typically 1 foot deep/ day!

Thaw cheap - as low as 3.7¢/cu. ft.

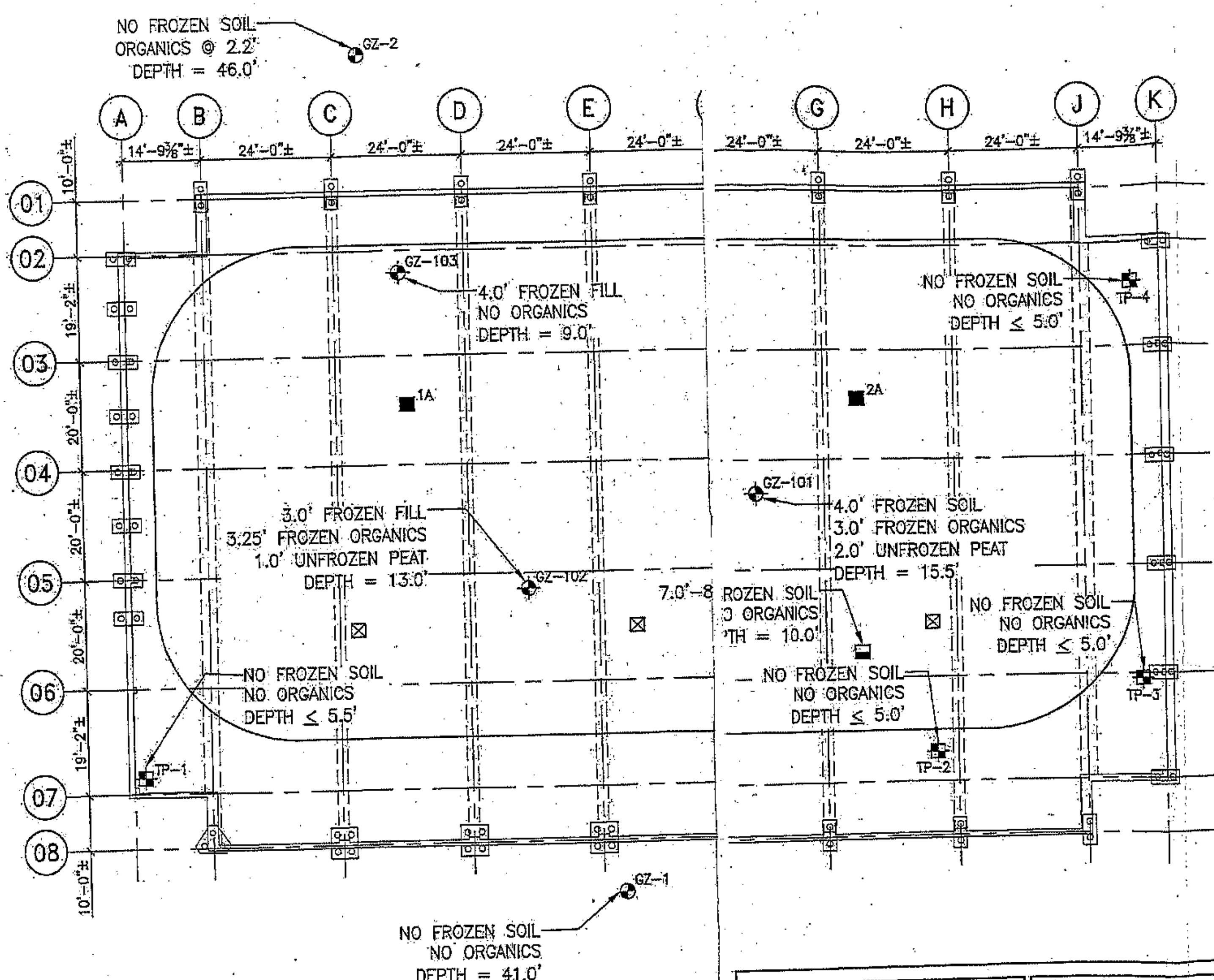
Thaw deep - up to 10 feet/application

Thaw easy - no enclosures to build; set up is simple

Thaw large areas - up to 12,000 sq. ft./application

Thaw safe - certified in the US and Canada

800-328-7094



LEGEND:

GZ-101 BORING PERFORMED BY NEW HAMPSHIRE BORING OF BROCKTON, MA AND OBSERVED BY GZA ON MAY 21, 2007.

GZ-1 BORING PERFORMED BY NEW HAMPSHIRE BORING OF BROCKTON, MA AND OBSERVED BY GZA ON NOVEMBER 8, 2006.

TP-1 TEST PIT PERFORMED BY RONALD MARINI CORP., OF NEWTON, MA AND OBSERVED BY GZA ON NOVEMBER 9, 2006.

APPROXIMATE LOCATION OF TEST PIT EXCAVATION PERFORMED BY CONTRACTOR ON MAY 11, 2007.

1A SETTLEMENT PLATFORM

PRISM TEST PITS TO CHECK FOR FROZEN GROUND AFTER ACCELERATED THAWING COMPLETED

DEPTH = TOTAL DEPTH OF BORING OR TEST PIT

NOTE:
1. THE ORIGINAL LOCATIONS OF THE EXPLORATIONS WERE APPROXIMATELY DETERMINED BY OTHERS USING TAPE MEASUREMENTS MADE IN THE FIELD FROM EXISTING TOPOGRAPHIC AND MAN-MADE FEATURES. THE LOCATIONS SHOWN WERE SCALED FROM DOCUMENTS PREPARED BY OTHERS. THE DATA SHOULD BE

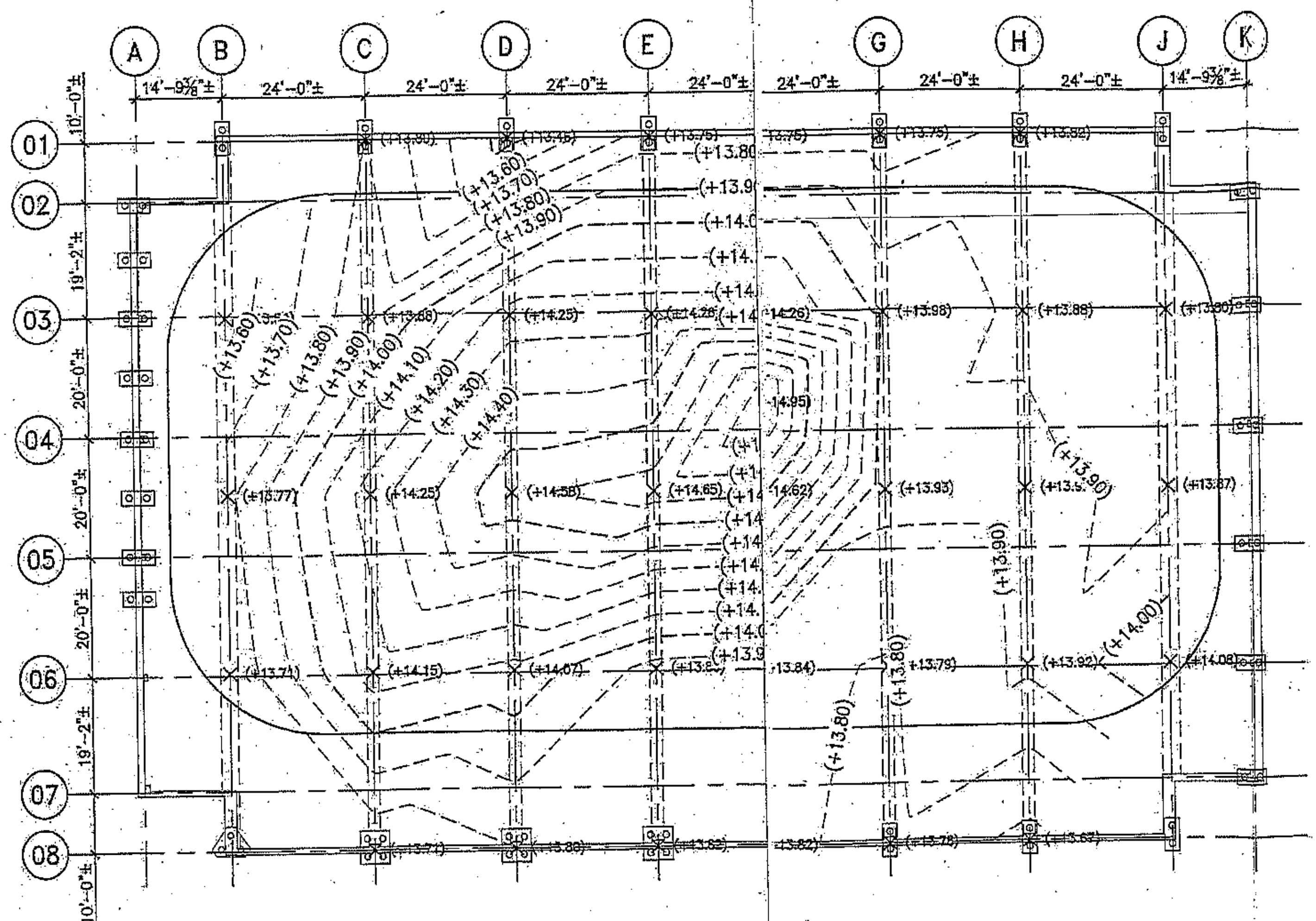
SIMPSON GUMPERTZ & HEGER
Engineering of Structures and Building Enclosures
Simpson Gumpertz & Heger Inc. 781.907.9000 fax 781.907.9009

Project: Post Construction Settlement
Larsen Skating Rink
Winthrop, MA

Drawing Title: Subsurface Exploration Summary and Location Plan

Proj.	Drawn:	Checked:	Date:	Scale:

Drawing No.: Fig. 1



NOTES:

1. SURVEY BY PRISM BUILDERS DATED 14 MAY, 2007. AS REFERENCED IN GZA REPORT DATED 26 JULY, 2007.
2. ALL ELEVATIONS ARE IN INCHES.
3. SURVEY DATUM IS FINISH FLOOR AT LOBBY (EL. 15.00')
4. ALL ELEVATIONS ARE AT TOP OF GRADE BEAM.

LEGEND:

(+13.90) / (+14.00) CONTOUR LINES

CONTOUR INTERVAL = 0.10'

X (-13.93) SPOT ELEVATION (FEET)

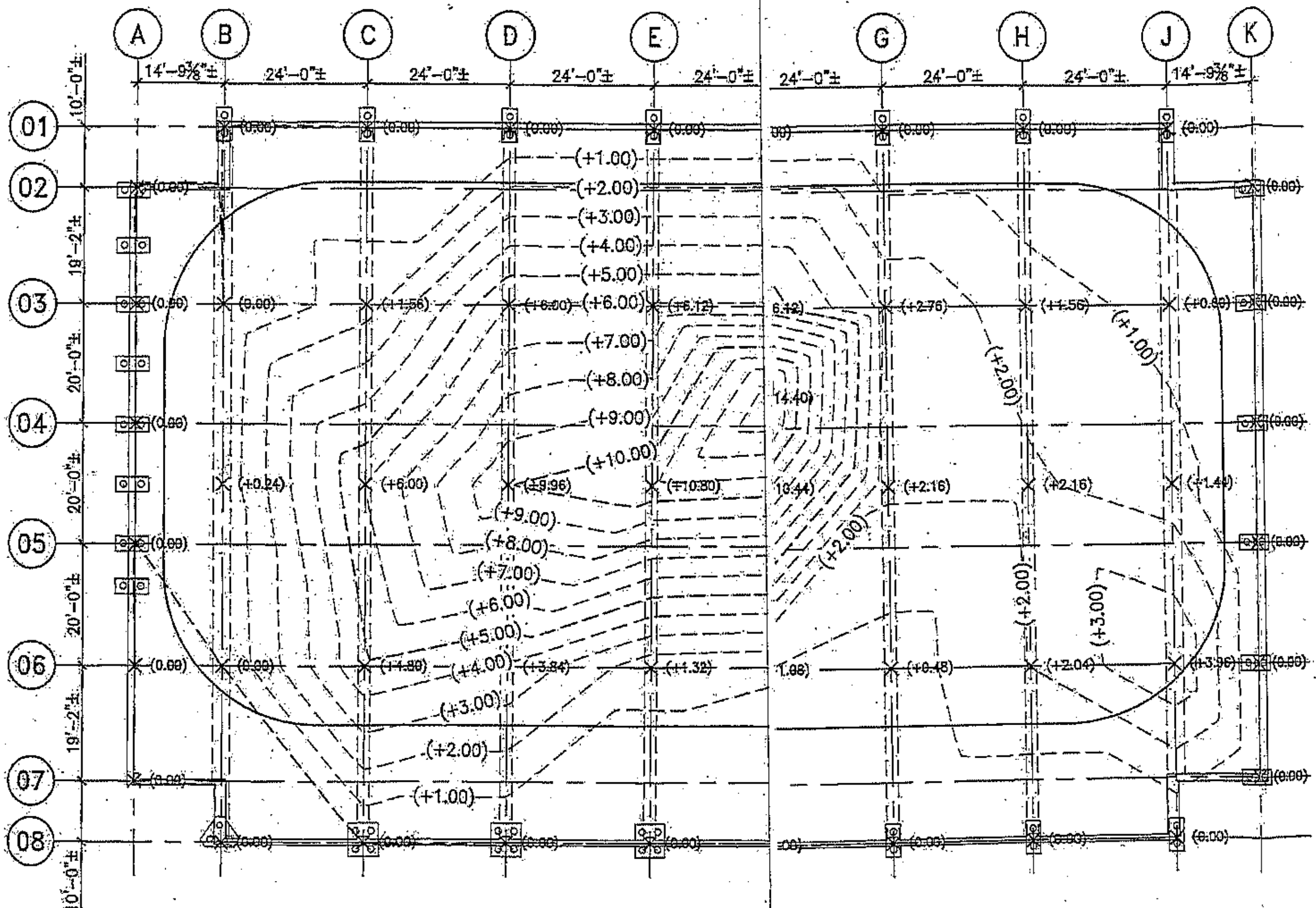
SIMPSON GUMPERTZ & HEGER
Engineering of Structures and Building Enclosures

Simpson Gumpertz & Heger Inc.
41 Seyon Street, Building 1, Suite 500
Waltham, Massachusetts 02453
781.907.9000
fax 781.907.9009
www.sgh.com

Project: Post Construction Settlement
Larsen Skating Rink
Winthrop, MA

Drawing Title: Plan of Heaved Tie Beam Elevations

Proj.	Drawn:	Checked:	Date:	Scale:	Drawing No.:
080485.00	MFH	WPK	09/16/08	1" = 20'-0"	Fig. 3



NOTES:
1. BASED ON TIE BEAM SURVEY BY PRISM BUILDERS DATED 14 MAY, 2007. AS REFERENCED IN GZA REPORT DATED 26 JULY, 2007. ASSUMES NO HEAVE OF TIE BEAMS OCCURRED AT THE EXTERIOR WALL. AVERAGE ELEVATION AT ENDS OF TIE BEAMS AT EXTERIOR WALL IS ASSUMED TO BE EL. 13.75".
2. ALL HEAVE VALUES ARE IN INCHES.
3. ALL HEAVE MEASURED AT TOP OF TIE BEAMS.

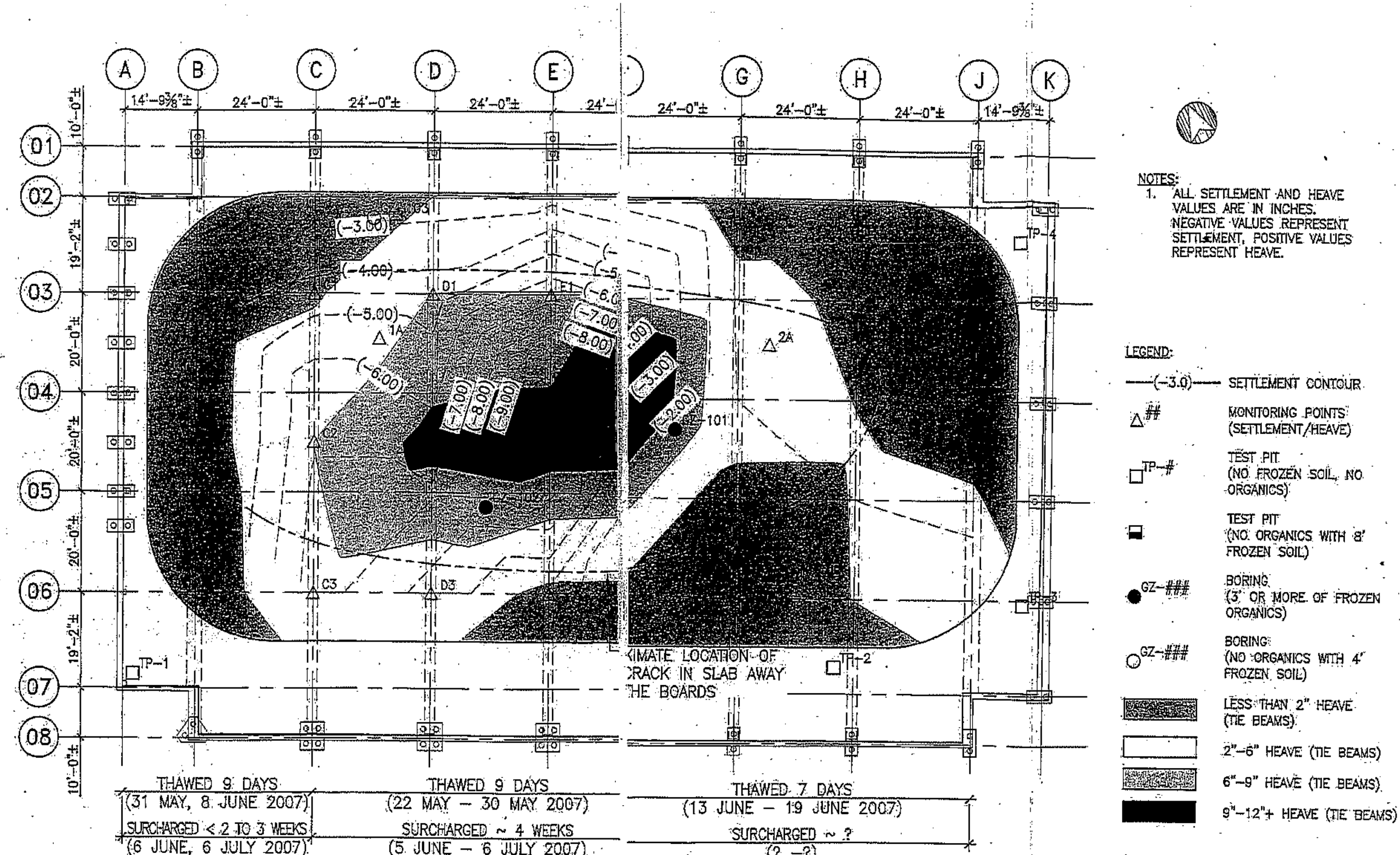
LEGEND:

—(+4.90)— / —(+5.00)—	TOTAL HEAVE CONTOUR LINES

CONTOUR INTERVAL = 1.00"

X (+6.12)	HEAVE (INCHES)

SIMPSON GUMPERTZ & HEGER Engineering of Structures and Building Enclosures Simpson Gumpertz & Heger Inc. 41 Seyon Street, Building 1, Suite 500 Waltham, Massachusetts 02453 781.907.9000 fax 781.907.9009 www.sgh.com	Project: Post Construction Settlement Larsen Skating Rink Winthrop, MA Drawing Title: Plan of Estimated Tie Beam Heave			Drawing No.: Fig. 4
Proj. 080485.00	Drawn: MFH	Checked: WPK	Date: 09/16/08	Scale: 1" = 20'-0"



SIMPSON GUMPERTZ & HEGER
Engineering of Structures and Building Enclosures
Simpson Gumpertz & Heger Inc.
41 Seyon Street, Building 1, Suite 500
Waltham, Massachusetts 02453
781.907.9000
fax: 781.907.9009
www.sgh.com

Project: Post Construction Settlement Larsen Skating Rink Winthrop, MA			Drawing No.: Fig. 5
Drawing Title: Composite Plan – Rink Heave, Settlement, and Cracking			
Proj: 080485.00	Drawn: MFH	Checked: WPK	Date: 09/16/08
Scale: 1" = 20'-0"			

GZA GeoEnvironmental, Inc.
Engineers and Scientists
One Edgewater Drive
Norwood, MA 02062
781-278-3700
Fax 781-278-5701
http://www.gza.com

JOB 51.0009361.00
SHEET NO. 1 OF 1
CALCULATED BY WHH DATE 8/13/08
CHECKED BY MAR DATE 8/14/08
SCALE

COMPUTATION OF SLAB ELEVS. WITH RESPECT TO ENTRANCE LOBBY SLAB

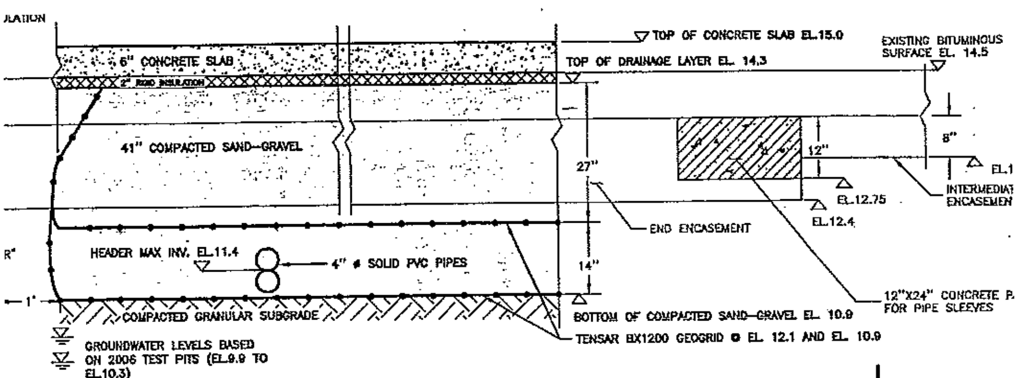
LEVEL SET UP NEAR RED LINE, PAULINE ST. SIDE

HI = 4.80

BM 3 = 4.84 ON THIN MASTIC - CONC. SILL @ LOBBY - FINE POINT. SAY 4.83 CONSIDERING ± 0.01 ACC.

LOBBY CONC. IS 0.03 FT BELOW CONCRETE AT ⊼

SETTLEMENT POINT NUMBER	LEVEL READING	ELEV. W/R/T BM 3 - 4.83 (FT)	(IN)	SETTLEMENT POINT NUMBER	LEVEL READING	ELEV. W/R/T BM3 (FT)	(IN)
P 1	4.79	+.04	+.48	P 26	4.84	-.01	-.12
P 2	4.79	+.04	+.48	P 27	4.80	+.03	+.36
P 3	4.80	+.03	+.36	P 28	5.27	-.44	-5.3
P 4	4.82	+.01	+.12	P 29	5.53	-.70	-8.4
P 5	4.81	+.02	+.24	P 30	5.02	-.19	-2.3
P 6	4.81	+.02	+.24	P 31	4.83	0	0
P 7	4.79	+.04	+.48	P 32	5.62	-.79	-9.5
P 8	4.81	+.02	+.24	P 33	4.81	+.02	+.24
P 9	5.05	-.22	-2.6	P 34	4.94	-.11	-1.3
P 10	4.80	+.03	+.36	P 35	5.46	-.63	-7.6
P 11	5.61	-.78	-9.4	P 36	5.15	-.32	-3.8
P 12	5.68	-.85	-10.2	P 37	4.81	+.02	+.24
P 13	5.00	-.17	-2.0	P 38	4.91	-.08	-1.0
P 14	4.81	+.02	+.24	P 39	5.31	-.48	-5.8
P 15	4.77	+.06	+.72	P 40	5.21	-.38	-4.6
P 16	4.78	+.05	+.60	P 41	4.86	-.03	-.36
P 17	5.56	-.73	-8.8	P 42	4.84	-.01	-.12
P 18	4.86	-.03	-.36	P 43	5.13	-.30	-3.6
P 19	5.27	-.44	-5.3	P 44	5.15	-.32	-3.8
P 20	5.11	-.28	-3.4	P 45	4.95	-.12	-1.4
P 21	4.86	+.03	+.36	P 46	4.82	+.01	+.12
P 22	4.79	+.04	+.48	P 47	4.89	-.06	-.72
P 23	4.78	+.05	+.60	P 48	4.91	-.08	-.96
P 24	4.78	+.05	+.60	P 49	4.78	+.05	+.60
P 25	4.80	+.03	+.36				

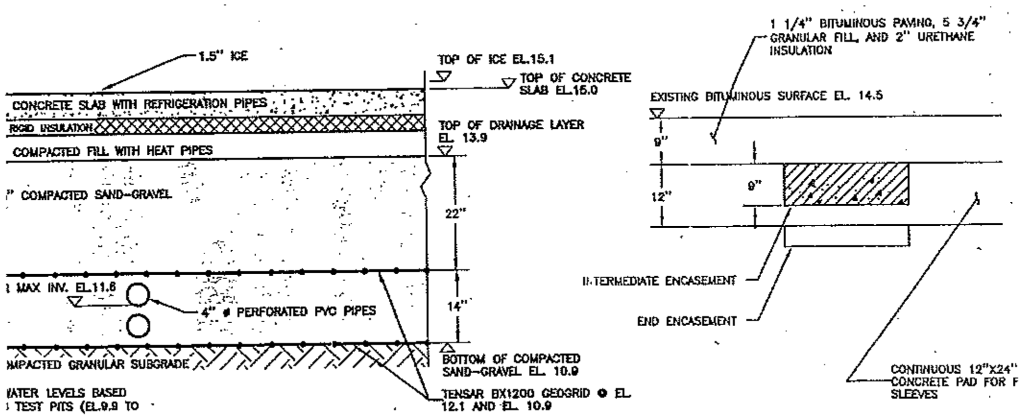


SECTION A-A'

SCALE: 1/2" = 1 FT

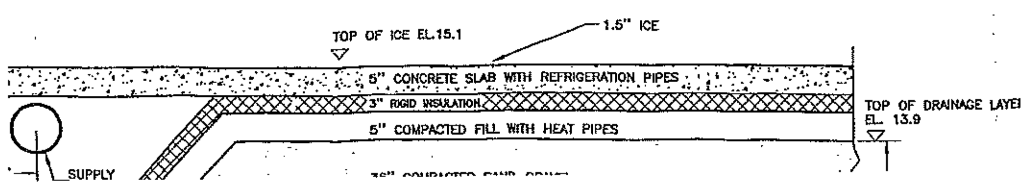
15,0 = Lobby Entry Floor

BM3



SECTION B-B'

SCALE: 1/2" = 1 FT



Product Information Bulletin

INTERCOOL® NFE

INTERCOOL NFE is chemically engineered using an inhibitor package containing *phosphate*, for ferrous metal protection, *boron* to maintain the reserve alkalinity at acceptable levels, and the non-ferrous metal inhibitor *tolyltriazole* for corrosion protection in an ***ethylene glycol*** base when used as an Industrial Heat Transfer Fluid. The chemistry employed will effectively protect your industrial equipment whether constructed of single or mixed alloys. The industrial corrosion control inhibitors included have been specially formulated to extend the service life of the coolant. Therefore, you will receive a higher level of reserve alkalinity, superior performance, and less maintenance requirements through reinhibiting. These attributes improve your bottom line cost.

INTERCOOL OP-101 is added initially and for remediation purposes when required. ***INTERCOOL*** inhibitors, when added to ***ethylene glycol*** in the prescribed amount will protect such metals as Brass, Copper, Copper alloys, Steel, Cast iron, and Aluminum. ***INTERCOOL*** inhibitors have successfully completed the 336-hour ASTM D-1384 corrosion test. A certificate of assurance is available upon request

INTERCOOL NFE can be purchased in its concentrated form or preblended with deionized water to meet your specification for boiling, freeze and/or burst protection.

Proposed Master Specification on Inhibited Glycol's and System Preparation

For

*INTERCOOL*TM *AND INTERCLEAN*TM

Produced By

Interstate Chemical Co., Inc.

- The closed loop piping system shall contain a preblended solution of industrially inhibited [ethylene] [propylene] glycol and deionized water. The solution concentration shall be [?] and provide freeze protection to [?] degrees Fahrenheit.

- AUTOMOTIVE GRADE ANTIFREEZE IS NOT ACCEPTABLE

- The water used for the dilution of the glycol must meet the following water quality criteria. **<25ppm Sulfate; <25ppm Chloride; <1ppm Calcium; <1ppm Magnesium <25ppm Silica. Electrical conductivity umho/cm @ 25 C. 1.0 max. Total water hardness must be less than 60ppm and meet the Type II Reagent Water specification as per ASTM D-1193.**

- The selected coolant must meet or exceed the ASTM D-1384 corrosion test for coolants in glassware @ 190* F. for 336 hours. A certificate of Assurance must be provided by the supplier prior to delivery.

- The solution shall contain a fluorescent dye to facilitate easy leak detection.

- Approved coolant manufacturers are:
  1.) Interstate Chemical Co.; INTERCOOL NFE/OP-100 - %(ethylene glycol) NFP/P-300 - % (propylene glycol)
  2.) Dow Chemical Co.; Dowtherm SR-1-% (ethylene glycol) Dowfrost HD-% (propylene glycol)

- The coolant manufacturer shall analyze the fluid bi-annually to ensure the glycol water solution continues to provide corrosion protection within industry standards and at no cost to the owner.

- No chemical additions shall be made to the glycol water solution until an analysis has been completed by the coolant manufacturer. Should such a chemical addition required, it will be done in accordance with the recommendations on the analyticals as supplied by the manufacturer.

- The mechanical contractor shall meter the initial water fill for the purpose of hydrostatic pressure testing and/or system flushing. After completion of this requirement the water shall be metered out. This will provide the contractor with a precise measure of coolant required to fill the system as well as the amount of water trapped in the system. This process will allow for any adjustments required prior to delivery of the premixed glycol solution and ensure that the solution strength is in compliance with the specification.

- Should the concentration still require adjustment after the system has been filled and as a result of trapped water, then drain the required amount of fluid from the system and replace it with the same manufacturers coolant in its concentrated form. Repeat this process until compliance with this specification is achieved.

NOTE: Should the possibility of incidental food contact exist in the application or placement of the system, then USP GRADE Propylene Glycol must be used. The manufacturers food grade product must have a letter of approval from the USDA, meet the requirements of the FDA and be listed in the "Journal of Proprietary Substances and Nonfood Compounds".

Approved Manufacturers are: 1) Interstate Chemical Co. - INTERCOOL P-323 [%] 2) Dow Chemical Co. - Dowfrost [%]

__System Preparation__

- Clean and flush piping system, remove, clean and replace strainer screens once the system water is clear.

- Water flush applies to the following systems:
  A.) Heating Water
  B.) Chilled Water
  C.) Glycol Water
  D.) Heating/Cooling Water

System Preparation

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  A.) Heating Water
  B.) Chilled Water
  C.) Glycol Water
  D.) Heating/Cooling Water

Chemical Cleaning:

- Refill the system with water and allow for 10 volume percent of pre-cleaner for the removal of scale, oils and other extraneous materials. Add the required amount of cleaner and circulate for 6 to 8 hours at 150 degrees F, or 12 hours if less than 90 degrees Fahrenheit.

- The system cleaner shall be INTERCLEAN MC-1 by Interstate Chemical Co. or approved equal.

- .Drain the system after the required circulation period as quickly as possible, this will prevent settling of foulants. Run circulating pumps and flush with clean water until the discharge water is clear

- When system water is clear, remove, clean and replace all strainers.

- Fill the system with the approved glycol blend, all air vents should be opened during the filling process to ensure that the air is purged from the system. Once the system is full, all air vents should be closed.

- Circulate the glycol water mixture for 24 hours before a sample is taken and tested for the proper concentration, freeze point, reserve alkalinity and pH.

Martin Rodick

From: Martin Rodick [mrodick@gza.com]
Sent: Monday, May 12, 2008 6:05 PM
To: 'Bruce Fairless'; 'whover@gza.com'
Cc: 'mhall@gza.com'; 'Kenneth R Johnston'
Subject: RE: Potential Claim; Larsen Rink Renovations, Winthrop MA

Bruce-
I have copied and am now delivering the following documents to Bill and Ken.

1. Signed Proposal for Services Dated 10/31/06 (for 19260.0)
2. Signed Proposal for Services Dated 1/18/07 (for 19260.1)
3. Signed Proposal for Services Dated 5/17/07 (for 19260.2)
4. Geotechnical Report dated 12/4/06
5. Frozen Ground Summary Report dated 5/25/07
6. Preliminary Monitoring Data Review letter dated 7/6/07

-Marty

From: Bruce Fairless [mailto:bruce.fairless@gza.com]
Sent: Monday, May 12, 2008 4:01 PM
To: whover@gza.com
Cc: mhall@gza.com; mrodick@gza.com; 'Kenneth R Johnston'
Subject: RE: Potential Claim; Larsen Rink Renovations, Winthrop MA

OK. I will send as scanned documents in a couple of emails. Bruce

---

From: William Hover [mailto:whover@gza.com]
Sent: Monday, May 12, 2008 3:46 PM
To: 'Bruce Fairless'
Cc: mhall@gza.com; mrodick@gza.com; 'Kenneth R Johnston'
Subject: RE: Potential Claim; Larsen Rink Renovations, Winthrop MA

Bruce,

Please put together a complete package of our reports, contracts and key correspondence and get it to me, copy to Ken Johnston.

Upon further review, we will decide whether/when to notify the insurance carrier (which would be accomplished through Ken J.).

I would like to meet with you and Ken tomorrow or Thursday to review this situation (as I'm out next week). It sounds like our recommendations were not followed and the settlement performance is along the lines that we estimated, but that we would likely be drawn in to resolution of the issue.

At this point I wouldn't perform additional services without a signed contract.

Thanks,

Bill

From: Bruce Fairless [mailto:bruce.fairless@gza.com]
Sent: Monday, May 12, 2008 3:32 PM
To: whover@gza.com
Cc: mhall@gza.com; mrodick@gza.com
Subject: Potential Claim; Larsen Rink Renovations, Winthrop MA

Bill,

I attended a meeting today with project team associated with the Larsen Rink renovations in Winthrop, MA. New piping, base course and concrete slab were installed within an existing pile-supported building last summer in time for the winter season. GZA provided geotechnical services for the project.

The slab now has an 8-inch-deep bowl in the middle and will be unable to be used this coming season without additional repairs.

There were 4 stages to the project for GZA:

1. We prepared a geotechnical report in 2004 for rink slab repairs and a possible rink expansion. Organic soils were identified.
2. We prepared specifications and a slab base course design incorporating drainage and gravel sandwich between 2 layers of geogrid.
3. In May 2007, after repairs of the rink had started, we were called in because frozen soil was encountered beneath the rink. We performed additional explorations and made recommendations to allow thawing and preloading of peat to mitigate anticipated settlement. We estimated up about a foot of settlement and recommended monitoring.
4. GZA was asked to review monitoring data prepared by others. The data showed negligible settlement after thawing and preloading according to the contractor. We questioned the validity of the data and could not explain the data geotechnically, apart from suggesting the thaw had not occurred.

There have been no threats of lawsuits as yet. We suggested they monitor the slab settlement. At some point they may excavate the slab to observe whether there are voids and they may ask GZA to do more drilling to check if the ground is thawed throughout. We indicated that monitoring the ground under the slab may be more effective as the slab may not be following the ground due to diaphragm action.

Our correspondence contained numerous warnings of settlement regardless of the thawing, surcharge and geogrid mitigation measures, but they were under such pressure to complete construction before the winter season that they proceeded anyway.

Should I or will you notify our insurance carrier?

I'll let you know how this develops.

Bruce

Bruce W. Fairless, P.E.
Associate Principal

617 482 1000 Ext. 3502
617 482 6868 (fax)
781 603 2254 (mobile)
GZA GeoEnvironmental, Inc.

133 Federal Street, 3rd Floor
Boston MA 02110
www.gza.com

5/12/2008

Martin Rodick

From: Martin Rodick [mrodick@gza.com]
Sent: Monday, May 12, 2008 5:36 PM
To: 'Bruce Fairless'
Subject: RE: meeting summary

OK, I understood it may not go out - I think it accomplishes the internal function also.
-M

From: Bruce Fairless [mailto:bfairless@gza.com]
Sent: Monday, May 12, 2008 5:19 PM
To: mrodick@gza.com
Cc: Bruce Fairless
Subject: Re: meeting summary

I meant the meeting summary for our files; not necessarily for distribution. Hover, said no services without a signed contract. Thanks for doing this. B
On May 12, 2008, at 4:59 PM, Martin Rodick wrote:

> Bruce-
> Please review this before we send out to anyone.
> Thanks,
> -Marty
>
> Bruce Fairless and Marty Rodick of GZA attended a meeting at the Larsen Rink to discuss the slab cracking and apparent settlement of the concrete ice rink slab constructed in Summer/Fall 2007.
>
> Others in attendence included:
> • Matt Genzale, Bob Waxman and Bill Congdon of Prism Builders
> • Terry McLaughlin of McLaughlin Management and Design
> • Marc Wallace and Sean Driscoll of the Town of Winthrop
>
> **OBSERVATIONS MADE AND FACTS REPORTED**
>
> A depressed portion of the concrete slab was observed in the central portion of the rink. The depressed area appeared to occupy less than 1/4 of the rink area, and the apparent settlement in the center of this area was measured at 8 1/4 inches. The perimeter area of the slab, within about 10 feet of the dasher boards, appeared to be relatively level and not settled. Cracking of the slab was observed near the approximate midpoint between the dasher boards and the main settlement area. Another smaller area of apparent settlement was observed in the northeast portion of the rink. No measurements were made in this area.
>
> Mr. Wallace opened one of the cleanouts for the sub-slab drainage system header pipes and a small amount of water was observed at the bottom of the pipe elbow about 4.5 feet below slab grade.
>
> Mr. Wallace and Mr. Driscoll stated that a depressed area in the slab/ice was first noticed in late January or early February 2008. They also stated that no leaks or problems with the

glycol refrigerant piping system have been observed.

DISCUSSIONS OF SOLUTIONS AND COURSES OF ACTION

It was agreed by all that it must be verfied that the soils below the rink are fully thawed and the settlement is not ongoing at an unacceptable rate prior to reconstructing the slab.

GZA recommended that the slab settlement be monitored to determine if it is continuing to settle, or if it has stopped. Mr. Driscoll concurred and stated that monitoring of the slab settlement would be performed on at least a weekly basis.

The issue of whether a void is present below the slab was discussed. GZA offered an opinion that there may be areas where voids are present, as the reinforced concrete slab may have spanned from the unsettled edge and over a void for a certain distance, then cracked and fallen to the soil surface near the center of the rink.

The Town stated that most likely, the slab cannot be reused in its current condition, and that slab demolition and reconstruction will be performed before the ice rink is used again.

Drilling through the slab and measuring the void was presented by GZA as a posible course of action. Also, if the slab observed to be bridging over void areas, instrumentation such as borros anchors could be installed to measure settlement of the soils below the slab.

Prior to drilling or cutting through the slab, the Town would need to determine for certain that the slab will not be reused, and the glycol refrigerant would need to be purged from the piping system embedded in the concrete slab. Mr. Wallace stated that the system will be purged soon regardless of plans to ensure that leaks to the soils below do not occur.

It was agreed that the Town would do the following:
• Get the glycol system purged as soon as possible;
• Decide if the slab should be cut or drilled into for measuring voids and monitoirng settlement, and;
• Notify GZA if additional services were requested.

MARTIN RODICK
Project Manager/Geotechnical Engineer
GZA GeoEnvironmental, Inc.
781-278-5790

Martin Rodick

From: Matt Genzale / Prism Builders, Inc. [mgenzale@prismbuilders.com]
Sent: Monday, June 25, 2007 3:00 PM
To: bfairless@gza.com
Cc: mrodick@gza.com; 'Terry MacLaughlin'; Bob Waxman
Subject: RE: Larsen Rink Monitoring Data Review - Draft

Bruce,

I spoke to Terry and he had said you were still looking for this information.

The test holes were dug as follows:

Between B1-C1

Between D2-E2

Between G1-H1

All were dug down to -13 feet. So, basically using the 15.00 benchmark these pits were dug from 11.00 to 2.00

My superintendent and site contractor easily dug the pits with a mini-excavator. If I'm not mistaken each time, a town employee happened to be present. Also, when dug, the ground water was rushing into the pits, further indicating thawed soils.

Matt

-----Original Message-----
From: Bruce Fairless [mailto:bruce.fairless@gza.com]
Sent: Friday, June 22, 2007 9:24 AM
To: 'Matt Genzale / Prism Builders, Inc.'
Cc: mrodick@gza.com; 'Terry MacLaughlin'
Subject: RE: Larsen Rink Monitoring Data Review - Draft

Thanks Matt. Could you tell me where in the other direction too; between 1 and 2, etc.?

How far down was it excavated? From what grade was it excavated? How and who made the assessment whether it was frozen or not? We need this information to finalize our review.

Thanks.

Bruce

From: Matt Genzale / Prism Builders, Inc. [mailto:mgenzale@prismbuilders.com]
Sent: Friday, June 22, 2007 9:13 AM
To: bfairless@gza.com; 'Terry MacLaughlin'; sdriscoll@town.winthrop.ma.us
Cc: mrodick@gza.com

Subject: RE: Larsen Rink Monitoring Data Review - Draft

3 test pits were dug using a mini-excavator

1.) Between B and C

2.) Between D and E

3.) Between G and H

-----Original Message-----
From: Bruce Fairless [mailto:bruce.fairless@gza.com]
Sent: Thursday, June 21, 2007 4:19 PM
To: 'Terry MacLaughlin'; sdriscoll@town.winthrop.ma.us; 'Matt Genzale / Prism Builders, Inc.'
Cc: mrodick@gza.com
Subject: Larsen Rink Monitoring Data Review - Draft

Gentlemen:

Please find attached a draft letter responding to the monitoring data. It's draft because we want to better understand the test pit that Prism excavated to see if the ground was thawed. I have sent an email to Matt this morning requesting data.

Please let us know if you have comments.

Bruce

Bruce W. Fairless, P.E.
Associate Principal

617 482 1000 Ext. 3502
617 482 6868 (fax)
781 603 2254 (cell)
GZA GeoEnvironmental, Inc.

133 Federal Street, 10th Floor
Boston MA 02110

Right-click here to download pictures. To help protect your privacy, Outlook prevented automatic download of this picture from the Internet.

Martin Rodick

From: Matt Genzale / Prism Builders, Inc. [mgenzale@prismbuilders.com]
Sent: Thursday, June 21, 2007 4:33 PM
To: bfairless@gza.com; 'Terry MacLaughlin'; sdriscoll@town.winthrop.ma.us
Cc: mrodick@gza.com; Bob Waxman
Subject: RE: Larsen Rink Monitoring Data Review - Draft

All:

Considering GZA's report indicates a concern that Prism is incapable of assessing weather or not the soils have been fully thawed, we recommend that GZA coordinate its own efforts to determine this information to a level of certainty they are comfortable with.

Having read the recommendations at the end of the report, it appears as though GZA would like Sean to make the final decision about whether or not it is acceptable to proceed.

Please advise.

Thank you,
Matt

-----Original Message-----
From: Bruce Fairless [mailto:bruce.fairless@gza.com]
Sent: Thursday, June 21, 2007 4:19 PM
To: 'Terry MacLaughlin'; sdriscoll@town.winthrop.ma.us; 'Matt Genzale / Prism Builders, Inc.'
Cc: mrodick@gza.com
Subject: Larsen Rink Monitoring Data Review - Draft

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Bruce W. Fairless, P.E.
Associate Principal

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Boston MA 02110

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SOIL & ROCK INSTRUMENTATION

GEOTECHNICAL INSTRUMENTATION DIVISION OF GZA GEOENVIRONMENTAL, INC.
ONE EDGEWATER DRIVE • NORWOOD, MASSACHUSETTS 02062 • (781) 278-3700

INTERNAL EQUIPMENT CHARGES

Phase Code ____________

Project Name Larsen Rink   Project Manager M. Rodick   Job No. 501.0009361.00

Date Out 8/7 1700   Scheduled Return ?   Period: From 8/9/08 To 8/23/08

Issued To M. Rodick   Issued By J Doherty   Returned To Tim. Salanteas

– For use one day – (JD)

RENTAL ITEMS

EQUIPMENT	S/N	Rate/ Day	S	S	M	T	W	T	F	S	S	M	T	W	T	F	Total Days	CHARGES	
Transit & Level		40.00			X	X	X	[illegible]		rcl		8	14	AM			~~[illegible]~~ 1	~~[illegible]~~	40-
digital camera	Sony	10.00			X	X	X	X									~~[illegible]~~ 2	~~[illegible]~~	20-

EQUIPMENT REPAIR

EQUIPMENT	S/N	SERVICE PERFORMED	Materials	Labor	CHARGES

EXPENDABLE MATERIALS

MATERIAL DESCRIPTION	Quantity	Unit Price	CHARGES
100' tape measure	1	30.00	30.00

TOTAL CHARGES FOR PERIOD $ ~~[illegible]~~ 90.00

SRI FILES COPY: WHITE • ACCOUNTING COPY: CANARY • PROJECT MANAGER IN COPY: PINK

GZAP006

GZA GEOENVIRONMENTAL INC.
SUMMARY OF TELEPHONE CALLS

☑ Incoming ☐ Outgoing

File No.:	19260.30 / 51.0009361.00
Project:	LARSEN RINK
Date: 4/24/09	Time: 11:45 Am
Person Calling or Called:	Terry MacLaughlin
Phone:	603-686-0423
Company or Organization:	MMD
Subject:	Insulation Below Ice Rink Slab

Summary of Call:

R VALUE OF INSULATION AT RINK
IS 15

5 per inch x 3 inches = 15 R VALUE

(Note by MAR) English Units of R: $\frac{hr \cdot ft^2 \cdot {}^\circ F}{Btu}$

Action:

CC: FILE

Name: MAR

GZA016

GZA GEOENVIRONMENTAL INC.
SUMMARY OF TELEPHONE CALLS

☒ Incoming ☐ Outgoing

File No.:	19260.30/51.00093101.00
Project:	LARSEN RINK POST-CONSTRUCTION
Date:	4/24/09 Time: 1 pm ±
Phone:	617-908-6909
Subject:	Freeze Temp & Info.
Person Calling or Called:	Marc Wallace
Company or Organization:	Town of Winthrop

Summary of Call:

Asked Marc what temp. the ice / freeze pipes were run at for this past skating season.

Marc said 10°F (lower than typical 17°F ±, due to 8" ± thick ice area)

Marc said they did not need to run warming pipes below insulation b/c temp below insulation (based on thermocouple located @ 16" depth – just below insulation –) showed Temps ≥ 32°F for almost entire season. Temps were > 32°F when shut ice off (2.5 wks ago).

Marc also said that Glycol is still being circulated through the system with the refrigeration turned off, so system has been "warming" the ground. – Marc estimated temperature at 45 to 50 deg. F.

Action:

CC: FILE

Name: MAR

GZAP016

GZA GEOENVIRONMENTAL INC.
SUMMARY OF TELEPHONE CALLS

☐ Incoming ☒ Outgoing

File No.	EP 09-153
Project:	LARSEN RINK
Date:	8/6/08 Time: 10:04 am
Phone:	800-344-2708
Subject:	Type of Refrigerant
Person Calling or Called:	Ron McHague
Company or Organization:	Ice Builders

Summary of Call:

ASKED RON WHAT TYPE OF REFRIGERANT IS IN SYSTEM AT LARSEN RINK

"INHIBITED ETHYLENE GLYCOL"
Interstate Chemical Inter-cool - NFE

Inhibited

per web research

9.25" Settlement when Ron was at Rink (3 weeks ago)

100' ϕ circular cracks / depression
Cracks Seem to be opening more

"Not Hazardous", but is toxic would go into GW there

Marc Wallace - School next door has series of pumps that they run all the time for gw control. Then later M. Wallace said he didn't remember saying

→ Fusion welded tubing Joints won't pull apart, but there is a stretching limit.

Ron told them that running ice is not a ~~[illegible]~~ good idea.
He recommended that they pump system dry.

Action:

CC:

Name: M. RODICK

GZA0016

GZA GEOENVIRONMENTAL INC.
SUMMARY OF TELEPHONE CALLS

☒ Incoming ☐ Outgoing

File No.:	01.P000153.09
Project:	Larsen Rink
Date:	7/1/08 Time: 10 AM
Person Calling or Called:	Sean Driscoll
Phone:	
Company or Organization:	Town of Winthrop
Subject:	Logs

Summary of Call:

Prism's insurance company
Travellers hired ~~[illegible]~~ on June 17th
Simpson Gumpertz & Heger
GZ-1 & GZ-2

sdriscoll@town.winthrop.ma.us

Action: SENT SEAN BORING LOGS GZ-1 & GZ-2

CC:

Name: MAR

GZAP016