Construction Certification Report
Pond No. 3 South Construction

NPDES Permit No. 0002186
Sherburne County (Sherco) Generating Plant
Northern States Power Company
(dba Xcel Energy, Inc.)

Prepared for
Xcel Energy, Inc.



January 2011

Prepared by

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Certification

Pond No. 3 South Construction

Sherburne County (Sherco) Generating Plant
Northern States Power Company
(dba Xcel Energy, Inc.)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Darren S. Schwake, P.E.
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Date: 1/12/2011

Section 1 **- Introduction**

This report presents the results of field observations and testing work performed during the 2009 and 2010 construction of Pond No. 3 South (Pond 3S), at Xcel Energy's (Xcel) Sherburne County Generating Plant (Sherco) in Becker, Minnesota. Pond 3S covers approximately 50 acres and is the south half and third phase of development of Pond No. 3 (Pond 3). The first phase was constructing Pond 3 North (Pond 3N) to a finished elevation of 976 (operation elevation of 970). The second phase was extending Pond 3N vertically to a finished elevation of 999 (operation elevation of 993).

Pond 3S 2009 construction primarily consisted of excavating the pond base and constructing the majority of the south embankment. 2010 construction primarily consisted of completing the south embankment, constructing the east embankment, clay anchor construction and composite liner installation. The Pond 3S composite liner consisted of a geosynthetic clay liner (GCL) overlain by a high density polyethylene (HDPE) 60 mil geomembrane. The composite liner on the north slope of Pond 3S was connected to the existing Pond 3N composite liner at elevation 995, the west slope was connected to the Pond 2 inclined clay barrier at elevation 1010, and the south and east embankments were lined to elevation 984. Other activities during Pond 3S construction included dewatering system installation, granular drainage material placement, electronic leak location testing, bottom ash placement, Pond 3 weir excavation, and site restoration. Construction activities are more completely described in subsequent sections of this report.

2009 construction was performed in accordance with the construction drawings prepared by McCain and Associates, dated October 2009. The prime contractor was Ames Construction, Inc. (Ames). 2010 construction was performed in accordance with the "Construction Documents, 2010 Pond 3 South Construction", prepared by McCain and Associates, dated March 2010. The prime contractor was Veit & Company, Inc. (Veit), and composite liner installation was performed by Geo-synthetics, Inc. (GSI) as a subcontractor to Veit. Excavation activities began in October 2009 and continued until December 2009. Construction resumed April 2010 and the project was completed in November 2010. Construction during 2009 and 2010 was performed in accordance with NPDES Permit No. 0002186. Deviations from the Specifications and Drawings are noted on the enclosed Record Drawings and are described in the following sections of this report.

Xcel Energy performed construction management activities and the following companies provided services to complete the Pond 3S Project:

Company	Activity or Products
McCain and Associates, Inc. (McCain)	Design, QA/QC
Ames Construction, Inc. (Ames)	Earthwork, 2009 Construction Phase
Veit & Company, Inc. (Veit)	Earthwork, 2010 Construction Phase
Geo-synthetics, Inc. (GSI)	Geomembrane Installation (Subcontractor to Veit)
GSE Lining Technology, LLC. (GSE)	Geomembrane Supplier
GSE Lining Technology, LLC. (GSE)	Geosynthetic Clay Liner (GCL) Supplier
Leak Location Services, Inc. (LLSI)	Geomembrane Leak Location Testing
Terra Services	Turf Establishment (Subcontractor to Veit)
Braun Intertec Corporation	Soil Testing
Soil Engineering Testing (SET)	Laboratory Clay Testing
Bonestroo	Survey Verification (Subcontractor to Veit)

Construction observation was performed during the project and consisted of observing and recording activities of the prime contractor and subcontractors, answering questions and interpreting information contained in the drawings and specifications as requested by the contractor, and directing testing and quality control activities performed by independent testing firms and construction subcontractors.

Section 2 - **Construction Methods and Materials**

The methods of construction, equipment, and materials used to construct Pond 3S are described in this section. Appendix A contains photographs illustrating the various methods and stages of construction, and the Record Drawings in Appendix H show the project as-constructed. Additional supporting data is included in other appendices, Interim Construction Data Submittals and described below.

2.1 Granular Drainage Material Screening and Stockpiling

The drainage sand used for the project was taken from existing granular drainage material stockpiles east of Pond 3S. The material in those stockpiles was produced in the fall of 2006, when clean sand was excavated and segregated from the Pond 3S footprint and screened to a maximum particle size of 3/8-inch. The screened sand was tested and stockpiled for use in future construction projects at the plant.

Samples of the screened sand were collected and analyzed during the 2010 Pond 3S project to verify compliance with project specifications. Sampling and analysis of the granular drainage material is discussed in Section 3.2.3.

2.2 Topsoil Stripping and Stockpiling

During the 2009 construction phase, topsoil was stripped from the east embankment of Pond 2, the south embankment of Pond 3N, the Pond 3S base area and the footprint of the south and east embankment areas. The topsoil was stripped by dozers, collected by scrapers, and hauled to the south stockpile southeast of Pond 3S. The topsoil varied from six inches thick on the Pond 3N south slope to one to three feet thick on the Pond 2 east slope. Topsoil in the Pond 3S south and east embankment footprints varied from six inches to one foot.

Prior to 2009, most of the topsoil had been stripped from the base area of Pond 3S for Pond 2 capping projects. Additional topsoil was stripped in 2006 when the base area was excavated and screened to produce granular drainage material.

Additional topsoil was stripped from the borrow area located northeast of Pond 3S, and stockpiled in the north stockpile, just south of the Pond access gate. Topsoil depths varied from one to four feet in the borrow area.

2.3 Pond Excavation

Following topsoil stripping in 2009, excavation began on the Pond 2 east ramp. Excavated random fill material was placed along the entire length of the south embankment in two to three inch lifts and compacted as specified in Section 2.5. After the Pond 2 east ramp was excavated, the scrapers began excavating the Pond 3S base in the southwest corner, working north and east. Random fill excavated by the scrapers in the western half of the pond base grades was placed in south embankment. Dozers excavated random fill from the south end of the pond base grades and pushed the material onto the south embankment in 12 inch loose lifts. The base grades along the east half of Pond 3S were excavated and hauled to the south embankment by dump trucks. Excavation started at the northeast corner of the pond base and worked south and west.

The base of Pond 3S was excavated to an elevation of 938 along the toe of the east and west embankments and crowned at the center of the pond, running north-south. A trench running east-west through the center of the pond was excavated to elevation 938. The trench hydraulically connects the toes of the east and west embankments. Cuts in the base grades ranged from zero in the south central area of the base to 22 feet in the northwest corner. The base grade material consisted of a poorly graded sand in the northwest area of Pond 3S, poorly graded sand with gravel in the southwest area, and silty sand along the eastern half of the pond. Random fill excavated from the southeastern area of the pond base contained high amounts of fine particles (smaller than the No. 200 sieve).

2.4 Borrow Area Development

To construct the remainder of the Pond 3S south embankment and the east embankment, random fill material was excavated from a borrow area located northeast of Pond 3S as shown in the Record Drawings in Appendix H. Prior to excavation, six soil samples were taken from three different test pits within the borrow area ranging from three to thirteen feet in depth. After stripping and stockpiling the topsoil, random fill was excavated using scrapers, excavators, and off-road haul trucks. In 2009, excavation started in the center along the west edge and progressed north. In 2010, excavation began in the northwest corner, and worked south and east. The borrow area was excavated to elevation 941 along the west toe, 940 along the east toe and crowned in the center at elevation 944. All perimeter slopes of the borrow area were final graded with three horizontal to one vertical sideslopes. Excavated material consisted primarily of sand, with some areas containing gravel and cobbles. Random fill soil samples collected from the borrow area were tested as discussed in Section 3.2.1.

2.5 Embankment Construction

Material excavated within the pond footprint was primarily used to construct the south embankment while material excavated from the borrow area was used to construct the east embankment. During embankment construction random fill was placed in maximum 12 inch loose lifts. Water was added during placement and compaction as needed to meet compaction requirements. An independent soil testing firm retained by Xcel, Braun Intertec Corporation, performed in-place density testing during embankment construction to verify compliance with project requirements. Compaction testing was performed to meet the required rate of one test per 3,000 cubic yards. A summary of the field density testing performed during Pond 3S construction is presented in Table 1. Testing locations are presented in Figures 1, 2, and 3. Complete data for Standard Proctor and field compaction testing are included in Appendix B.

During embankment construction in 2009, rocks greater than 12 inches in diameter were excavated from the pond base and stockpiled southeast of Pond 3S. Rocks in the embankment not found by the equipment operators were flagged by McCain or Xcel personnel and removed.

Lifts constructed with material excavated from the southeast corner contained high amounts of fine particles and were scarified prior to placing the subsequent lift to maintain embankment homogeneity.

In 2009, embankment construction began along the west end of the south embankment and continued eastward, across the entire width of the embankment, to the interior bench elevation of 965. Once the bench elevation was reached the contractor continued constructing the embankment above the bench to elevation 984. In 2010 construction began on the east end of the south embankment and progressed north across the entire width of the east embankment, to elevation 965. At elevation 965 a notch was left in the north end of the embankment and the remaining embankment was constructed above the interior bench to an elevation of 984. The notch provided access to the pond base during composite liner installation. Once all the material needed for composite liner installation was staged in the pond area, the notch was filled in with random fill and compacted. The final grades on the embankments were surveyed to verify design grades were achieved within the allowable tolerances.

2.6 Subgrade Preparation

During pond base excavation in 2009, a dozer utilizing GPS followed the scrapers and graded the pond base to 0.2’ above liner grades. Following excavation, a road grader assisted by a laborer utilizing a GPS

rover graded the pond base to liner grades in a direction diagonal to the scraper cuts removing most of the small rocks left behind. The subgrade was then watered and rolled with a vibratory smooth drum roller to provide a smooth surface free of any protrusions that may damage the composite liner. In 2010, the north, west, south and east slopes were fine-graded with a GPS dozer prior to liner installation to remove any protrusions, and the pond bottom was re-graded, watered and smooth rolled as needed.

The 1.5 horizontal to 1 vertical slope of the clay anchor subgrade was graded with a road grader assisted by a laborer using a GPS rover in 2009, and an excavator assisted by a laborer using a GPS rover along the east embankment in 2010.

In 2009, the pond subgrade in the southeast corner below elevation 945 was cut in an area that contained soils with high amounts of fine particles and low permeability. In 2010, the embankment was constructed above the 2009 grades using a random fill which contained few fine particles and high permeability. During construction, heavy rainfalls infiltrated into the southeast corner interior bench and encountered the poor draining 2009 soils at elevation 945, then seeped out the lower slope of the southeast corner. To prevent the corner from seeping and prematurely hydrating the GCL during composite liner installation, the contractor excavated one foot of random material from the slopes from elevation 950 down to the pond bottom. This material was replaced with one foot of low permeability compacted clay. The compacted clay was graded to allowable elevation tolerances.

2.7 Clay Anchor Construction

A five foot deep clay anchor was constructed at the top of the south and east embankments from elevation 979 to 984. In the northeast corner, the clay anchor follows the grade of the embankment from elevation 984 to an elevation of 995 and connects to the existing Pond 3N clay anchor. In the southeast corner, the clay anchor follows the embankment grade from elevation 984 to an elevation of 1010 and connects to the existing Pond 2 inclined clay barrier. The clay anchor is used to anchor the composite liner, and provides a low permeability connection for the transition from composite liner to the inclined clay barrier in Pond 2 or the future inclined clay barrier in Pond 3. Details of the clay anchor are shown on the Record Drawings in Appendix H along with clay anchor survey verification, located in Appendix G.

The clay anchor was constructed with clay from the off-site clay borrow source near Monticello, MN (Anderson Pit). The clay was placed in maximum eight inch loose lifts and compacted to at least 99 percent Standard Proctor density at or above the optimum moisture content. Moisture was added as needed during placing and compacting to achieve the proper moisture content. After the required

compaction was achieved, a two foot deep by two foot wide trench was dug into the clay to provide anchorage for the composite liner. Once the composite liner was installed, the anchor trench was backfilled with clay and compacted as specified. In-place density and moisture content testing, and laboratory testing of the clay was performed by Xcel's independent soil testing firms. The test results for clay used in the clay anchor are summarized in Table 2, 3, and 4, with complete test data located in Appendix C. Locations of tests are shown on Figures 4 and 5.

2.8 Composite Liner Installation

As described in Section 1, Pond 3S was lined with a composite liner system of GCL overlain by an HDPE geomembrane. On the sideslopes, internally reinforced GCL was used and was overlain by textured 60-mil HDPE geomembrane. On the base and interior benches, lightly reinforced GCL was used and was overlain with smooth 60-mil HDPE geomembrane.

Liner installation began on the east end of the north slope and progressed counter-clockwise around the pond to the southeast corner. Liner installation then moved to the northeast corner and progressed south, finishing in the southeast quadrant of the pond bottom. Generally, the slopes of each quadrant were lined prior to the pond bottom. GCL and geomembrane panels were oriented parallel to the three horizontal to one vertical sideslopes and pond bottom, which is crowned at the center and sloped at two percent to the toes of the east and west sideslopes. Each sideslope textured geomembrane panel was run out a minimum of 10 feet onto the pond bottom. In the center dewatering trench, the panels were oriented north-south, parallel to the trench slopes, which eliminated a longitudinal seam in the bottom of the trench.

During a typical day of installation, both GCL and geomembrane panels were deployed and seamed to insure all GCL was covered with geomembrane at the end of the day. This protected the GCL from precipitation and prevented it from becoming fully hydrated prior to completion of liner installation and cover soil placement. GCL that had hydrated or was damaged during installation was replaced. During installation, a large rain event submerged and hydrated approximately one acre of GCL near the toe of the east slope. The high water mark of the hydrated GCL was surveyed, and all GCL below this elevation was either replaced or left to dry and covered with new GCL, as depicted in Photo 36 of Appendix A.

Prior to GCL deployment, the subgrade was smooth rolled or fine graded as described in Section 2.6. Laborers used rakes to smooth areas inaccessible by heavy equipment.

The geomembrane liner was electronically leak tested after the dewatering system and granular drainage material was placed to verify the integrity of the composite liner. Electronic leak testing is discussed in Section 3.5.

2.8.1 Geosynthetic Clay Liner (GCL)

The GCL used on this project was manufactured by GSE. BentoLiner NWL® was used on the slopes and BentoLiner EC® was used on the base. Both BentoLiner NWL® and BentoLiner EC® rolls were 15.5 feet wide and 150 feet long. Prior to each days GCL deployment, the liner installer inspected the subgrade and determined the subgrade was acceptable for installation by signing the subgrade acceptance forms, included in the Additional Interim Construction Data section.

BentoLiner EC® is lightly reinforced with a non-woven geotextile on the bottom and a woven geotextile on the top. On the pond bottom, GCL was deployed using a tracked skid steer with a spreader bar. The skid steer used the spreader bar to lift the GCL roll and move in reverse to deploy the panel, while several laborers secured the end of the panel.

BentoLiner NWL® is reinforced with non-woven geotextile on both sides. On the sideslopes, the GCL was also deployed using a tracked skid steer. The skid steer would position itself on top of the slope, lift the GCL roll with the spreader bar, and back down while several laborers secured the end of the panel. The GCL panels were anchored at the top of the slope in a two foot deep anchor trench on the east, west and south slopes. Along the north side of the pond, the existing Pond 3N geomembrane was cut and flipped back, exposing the existing GCL. A line of supplemental granular bentonite was placed at a rate of ¼ pound per lineal foot over the existing GCL and the Pond 3S GCL was heat tacked onto the Pond 3N GCL.

During deployment, the longitudinal edges of the GCL panels were overlapped a minimum six inches over the underlying panel using lap lines marked on the GCL rolls during manufacturing. Accessory granular bentonite was used along the edges of adjacent panels, at a rate of ¼ pound per lineal foot continuously along all seams or overlap areas. GCL panels were overlapped a minimum of 24-inches at the roll ends in rain-lap fashion and augmented with accessory granular bentonite. Damaged GCL was repaired by placing a patch over the damaged area, with a 12 inch minimum overlap around all parts of the damaged area, and augmented with granular bentonite around the perimeter of the patch. After granular bentonite was placed, panel ends were heat tacked together with a leister heat gun. Quality control testing performed during GCL installation is described in Section 3.3.

2.8.2 Geomembrane

The HDPE geomembrane used for the pond was a 60-mil, white geomembrane manufactured by GSE. The white color was chosen instead of the typical black geomembrane to decrease the amount of wrinkling that generally occurs when the black geomembrane heats up during midday construction. Smooth geomembrane was used on the pond bottom and textured geomembrane was used on the slopes. Smooth geomembrane rolls were 22.5 feet wide by 560 feet long and textured geomembrane rolls were 22.5 feet wide by 520 feet long. All geomembrane was installed directly over the GCL.

Geomembrane was deployed using a tracked skid steer with a spreader bar and all-terrain vehicles (ATV's). The geomembrane on the slopes was deployed using a tracked skid steer positioned at the top of the slope to lift and hold the roll with the spreader bar while two ATV's pulled the panel down the slope. A smooth geomembrane rub sheet was used beneath the textured panel during deployment to prevent damage to the GCL. The geomembrane panels were anchored at the top of the slope in the same anchor trench used to anchor the GCL. Along the north side of the pond, the geomembrane was overlapped onto the existing 60-mil HDPE geomembrane and welded with a dual-wedge fusion welder whenever possible. Seams that could not be wedge welded were extrusion welded. Each panel of textured geomembrane was extended 10 feet past the toe of the slope to ensure stability of the cover soils.

Adjacent geomembrane panels were overlapped and seamed together with a dual-wedge fusion welder. Patches, repairs, boots and areas inaccessible to the fusion welder were seamed with an extrusion welder. End of panel seams were overlapped with the up-slope liner on top of the down-slope liner in typical rainlap fashion. Sandbags were used to temporarily anchor geomembrane panels to prevent wind uplift and damage to the geomembrane. Geomembrane boots were installed around the Pond 2 dewatering wells, which penetrate the composite liner along the west slope of the pond. The boots were extruded and banded with stainless steel bandings straps. Details of the pipe penetrations are shown in the Record Drawings.

The final layout of the geomembrane panels showing the locations of patches, seams, boots, and destructive tests is shown on the as-built panel layout included in the Interim Construction Data Submittal, Geomembrane Data section. Quality control testing performed during liner installation is described in Section 3.4.

2.9 Dewatering System

A dewatering system was constructed within Pond 3S to accommodate post-closure dewatering of Pond 3. The dewatering system consists of a granular drainage layer over the composite liner (discussed in Section 2.10), and a system of lateral and perimeter drain pipes that connect to two 30-inch dewatering pipes.

There are two lateral dewatering pipes oriented east-west across the pond bottom which follow the two percent slope of the pond bottom and one primary lateral along the bottom of the east-west dewatering trench. These pipes are perforated and are connected to perforated dewatering header pipes, which are oriented north-south along the toe of the east and west sideslopes. Each end of the primary lateral is connected to an open-ended 30-inch tee. The tee is connected to a 30-inch solid riser pipe, which runs to the top of the east and west slopes, where it is terminated with a flange adapter. A galvanized ¾ inch vent was installed in the flange adapter to allow the riser pipe to fill with water as the pond is filled. Clean-outs for the laterals and header pipes are located at the top of the east and west sideslopes inside corrugated metal pipe protective casings.

The dewatering pipes are eight inch diameter, perforated high density polyethylene pipes. Prior to installing the dewatering pipes, a protective geomembrane rub sheet was installed over the composite liner at the pipe locations. In the southeast corner of the pond bottom, the south 340 feet of the east dewatering header pipe was installed two feet higher. In this area, two feet of granular drainage material was placed over the composite liner immediately after liner installation was completed in order to confine the GCL and prevent premature hydration due to wet subgrade conditions mentioned in Section 2.6. The two feet of granular drainage material was covered with a geomembrane rub sheet and the header pipe was encapsulated in the typical two-stage aggregate, granular drainage material and bottom ash filter, as described below.

All lateral and header pipes were installed over six inches of coarse aggregate filter material, and are encapsulated in a two-stage coarse and fine aggregate filter. Mounded over the filter aggregates are two feet of granular drainage material and two feet of either random fill (above the laterals and the west header pipe) or bottom ash (above the east header pipe). The granular drainage material and aggregate filter are designed to filter out fines in the scrubber solids to prevent the dewatering pipes from becoming clogged.

The tops of the dewatering pipes were surveyed after installation; the survey data is included in Appendix G. Gradations for the coarse and fine aggregates are included in Appendix E.

2.10 Granular Drainage Layer Placement

Placement of the granular drainage layer proceeded as composite liner installation and dewatering system installation were completed. The drainage layer was placed in a single two foot lift over the geomembrane. The material used for granular drainage material was screened as discussed in Section 2.1. The material was screened to maximum particle size of 3/8-inch, and was tested for fines content and permeability to assure compliance with project specifications. Testing of the granular drainage material is discussed in Section 3.2.3.

The contractor hauled screened granular drainage material from the stockpile east of the pond in off-road dump trucks. Granular drainage material was built up at least four feet thick along haul roads inside the pond to provide access for trucks. Drainage sand was dumped from the haul roads, and dozers utilizing GPS equipment worked to place the material over the liner by rolling the material off the edge of the previously placed material so that sand did not slide across the liner. Laborers worked ahead of the dozer, removing sandbags and placing sand to prevent wrinkle propagation in the geomembrane. On the slopes, drainage material was placed from the bottom up. The sand was fine-graded to produce a smooth, uniform finished surface.

Prior to completing placement of the granular drainage layer, the stockpiles east of Pond 3S were exhausted and the contractor hauled granular drainage material from a stockpile location south of the Cell 3 landfill. The project specifications for the Cell 3 granular drainage material were identical to the Pond 3S material and had met all specifications during Cell 3 construction. Samples of the Cell 3 granular drainage material placed in Pond 3S were analyzed and met project specifications for grain size distribution and permeability, as discussed in Section 3.2.3.

2.11 Random Fill Slope Protection

Following completion of the granular drainage layer and electronic leak location test described in Section 3.5, a four foot thick layer of random fill was placed on the north and west slopes over the two feet of granular drainage material from the pond bottom to the assumed pond water elevation of 965. Above elevation 965, a 3.5 foot thick layer of random fill was placed on the sideslopes, covered by six inches of

topsoil, seeded and blanketed. Random fill was placed in a single lift, and provides protection of the drainage layer on the slopes during pond operation.

2.12 Riprap Flume and Plunge Pool Construction

The riprap flume and plunge pool was constructed in the northwest corner of the pond to protect the granular drainage layer during Pond 3N water transfer and dredge discharge activities. The riprap flume was excavated into the corner of the north and west slopes and is covered with a woven geotextile, and 18 inch salvaged Class 2/3 riprap. The plunge pool was constructed with random fill perimeter berms, covered with two layers of woven geotextile, installed perpendicular to one another and 18 inches of Class 2/3 riprap as shown on the Record Drawings.

2.13 Bottom Ash Placement

Following placement of random fill on the north and west slopes, a four foot thick layer of bottom ash material was placed on the south and east slopes over the two feet of granular drainage material. Bottom ash on the slopes was placed in a single lift and provides additional slope protection of the drainage layer on the slopes during pond operation.

Originally, an eight foot layer of bottom ash was designed on the interior benches of the south and east embankments. Once the bench was constructed to design grades, it was decided to continue to excavate the Bottom Ash Pond until suitable embankment material was no longer accessible. In addition to the slopes and benches, four bottom ash ramps were constructed. Two ramps were located in Pond 3N, one in the southwest corner to access the water transfer pumps, and one in the southeast corner to access the existing bottom ash bench. Two ramps were constructed in Pond 3S to access the interior bench in the southwest corner and on the east embankment, as shown on the Record Drawings. Lifts of bottom ash in the benches and ramps were spread into 12 inch lifts with a dozer and compacted, as described in Section 3.2.5

2.14 Pond 3 Weir Excavation

During Pond 3N construction in 2004, an overflow weir was built into the east end of the Pond 3N south embankment (Pond 3S north embankment) to hydraulically connect Pond 3S and Pond 3N. The base of the weir was constructed with composite liner from elevation 960 to 972. A composite flap was added on the north side of the weir to provide additional containment prior to Pond 3S construction. In 2008, the weir was extended from elevation 972 to 995 with composite liner. Once the weir had been electronically

leak tested, it was filled with random fill and compacted, and a composite upper flap was constructed on the north side of weir, from the existing lower flap to elevation 995. In 2010, the upper flap was removed and the random fill was excavated to elevation 972, leaving the lower flap intact. Random fill excavated from the weir was placed in the north end of the east embankment, spread into 12 inch loose lifts and compacted. Once the weir material was removed, Pond 3N and Pond 3S were hydraulically connected. Record Drawings for the weir excavation can be found in Appendix H.

2.15 Infiltration Pond Construction

The infiltration pond is located on the south side of the south embankment and is used to infiltrate stormwater runoff from the south embankment and stormwater captured by the future Pond 3 cap.

Construction began by stripping the topsoil and excavating the west end of the infiltration pond, progressing east. Topsoil was stripped and stockpiled southeast of Pond 3S and the random material was excavated from the pond and used to construct the perimeter road, south of the infiltration pond. The placed random fill was graded into 12 inch loose lifts with a dozer and rolled with a vibratory smooth drum roller. Following infiltration pond excavation and road construction, topsoil was placed in a single six inch lift, seeded and blanketed on the shoulders of the road and six inches of salvaged class 5 were spread and compacted on the road surface. Three 18 inch corrugated metal culverts were installed in the southwest corner of the infiltration pond for emergency overflow.

2.16 Site Restoration Activities

Site restoration activities include topsoiling, seeding and erosion blanket installation, final grading to maintain site drainage and runoff, constructing access and perimeter roads, and shaping borrow areas.

2.16.1 Topsoil Placement and Turf Establishment

Topsoil was hauled from the topsoil stockpile by off-road trucks to the top of the north and west embankments. Topsoil was pushed down the interior slopes in a single six inch lift to elevation 965 by a dozer utilizing GPS equipment. Topsoil for the exterior of the south and east embankments was hauled from the south stockpile to the toe of embankments by scrapers and off-road trucks. The topsoil was then pushed up the south embankment (2009 construction) and east embankment (2010 construction) and spread into a single six inch lift by dozers. Six inches of topsoil was also placed on the west slope and bench of the borrow area, seeded and blanketed.

On the top of embankments and on the slopes, seed was placed and a straw erosion blanket was installed to minimize erosion until vegetation is fully established. The south embankment was topsoiled during 2009 construction and some of it naturally established vegetation in 2010. No seed or blanket was installed on the established vegetation areas.

2.16.2 Access and Perimeter Road Construction

Class 5 aggregate was imported from an off-site source, spread and compacted into a single six inch lift on the top of the embankments in the northeast and southwest corner, as shown on the Record Drawings.

Section 3 - Testing and Quality Control

Testing and quality control activities were conducted by subcontractors to the prime contractor, by independent testing firms, and by field observation personnel from McCain and Xcel. Testing and quality control activities included surveying, soil testing, and geomembrane testing. Testing and quality control procedures are presented below.

3.1 Surveying

An independent registered land surveyor, Bonestroo, was retained by the prime contractor to provide location and grade verification as required. Earthwork verification surveying included shots at grade breaks and on a 100 foot grid on the subgrade inside and outside of the pond embankments. Shots were repeated over the established grid points to verify material thicknesses. The surveyor collected data using GPS equipment, and provided periodical results for review by McCain personnel. Construction staking was completed by the contractor, using their own GPS equipment and personnel to verify material thickness. Additional measurements were taken by McCain personnel at random locations to verify subgrade elevations and cover soil material thicknesses.

Additional survey shots were taken by Bonestroo on or near the established 100 foot grid for as-built records. These shots included: pipe and cleanout locations, existing geomembrane connection and geomembrane termination or anchor points. Complete survey data is contained in Appendix G.

3.2 Soil Testing

Soil testing was performed on the following

1. Random Fill

2. Clay
3. Granular Drainage Material
4. Coarse and Fine Filter Aggregate
5. Bottom Ash

3.2.1 Random Fill Testing

On-site material used for the Pond 3S embankments was referred to as random fill. Samples of random fill were collected and analyzed for Standard Proctor results. These results were used as compaction criteria for field density testing. The required compaction for embankments was 95 percent of the Standard Proctor maximum dry density. The moisture content was generally below optimum, requiring the contractor to add water during construction in order to obtain density requirements. Compaction testing was performed by Xcel's independent soil testing firm, Braun Intertec, under the direction of McCain personnel. Testing was performed using a nuclear density gauge, at a minimum frequency of one test per 3,000 cubic yards of material placed. A sand cone test was conducted adjacent to a nuclear density gauge to verify the accuracy of the nuclear gauge.

Samples of random fill were collected at the beginning of the project as different material types were encountered. Each field density test result was compared to the Standard Proctor results of the same material to determine if the field density met the 95 percent compaction criteria. No density tests were below 95 percent Standard Proctor. Field compaction results are presented in Table 1. Locations of the field compaction tests can be found in Figures 1 through 3. Complete data is located in Appendix B.

3.2.2 Clay Testing

The clay anchor was constructed with prequalified clay from the off-site source. Quality control testing performed during construction included in-place compaction and moisture content tests, laboratory analysis of in-place permeability, and index property tests (Atterberg Limits, sieve and hydrometer analysis, classification). Testing procedures and results are discussed below.

3.2.2.1 Off-site Clay Prequalification Testing

Clay used during the construction project was imported from an off-site source. The source, referred to as the Anderson pit, is located near Monticello, Mn. The contractor collected samples from the pit prior to construction to verify the clay would meet the project requirements.

McCain personnel also collected clay samples from the Anderson pit for additional prequalification testing prior to construction. Two samples were collected from test pits at the clay source. The clay was very uniform, and the two samples were sent to Xcel's independent laboratory (SET) for analysis of Atterberg Limits, particle size distribution, Standard Proctor, in-place moisture content, and re-compacted permeability. All of the samples tested met the MPCA guidelines for classification, permeability, Atterberg Limits and percent fines. The permeability samples were tested at or slightly above optimum moisture content and at 97 percent of the Standard Proctor maximum dry density.

The results of the clay prequalification testing are summarized in Table 2, with complete results in Appendix C.

3.2.2.2 In-place Clay Compaction Testing

During clay construction activities, a representative from Xcel's soil testing firm (Braun Intertec Corporation) was on site to perform in-place density and moisture content testing of the clay using a nuclear density gauge. Compaction testing was completed at the minimum rate of once per horizontal lift at intervals of approximately 100 feet. In order to determine passing or failing results, the contractor decided to use 99 percent of the Standard Proctor maximum dry density at or above optimum moisture content. This was higher than what the technical specifications required (95% of the Standard Proctor maximum dry density), but was needed to insure that the clay met the permeability specification of $1x10^{-7}$ cm/s as discussed in Section 3.2.2.1. When a field density test indicated a failing result, the area received additional compaction if the compaction was low, or was reworked to meet the moisture requirement. Additional testing was performed in the same location after the material had been reworked, and this procedure was repeated until passing test results were obtained. In addition to field testing of the clay, placement of the clay was constantly observed and monitored to verify that consistent processing and compaction procedures were being used, and that lift thicknesses were within tolerance. The on-site quality control personnel worked closely with the contractor during clay placement to insure the clay was placed and compacted to meet the project requirements.

Compaction testing was distributed across the site to give complete coverage of the clay placed. Compaction test locations are shown in Figure 4 and results of clay compaction tests are summarized in Table 3. Complete testing data can be found in Appendix C.

3.2.2.3 Clay Permeability and Index Properties Testing

In addition to prequalification testing, laboratory analysis was completed on additional clay samples collected on-site. The samples were collected by pushing thin-wall tubes into the clay after placement and compaction to recover undisturbed cores of clay. Voids created in the clay anchor during sample collection were backfilled with bentonite. Four samples were collected, and sample locations were distributed across the site to represent all areas of the clay anchor. Approximately 10,000 cubic yards of clay were placed, resulting in one test per 2,500 cubic yards. Samples were tested for permeability, Atterberg Limits, sieve and hydrometer analysis, and classification. The coefficient of permeability of the clay samples ranged from 1.0×10^{-7} to 5.5×10^{-9} cm/s, with an average of 3.6×10^{-8} cm/s, significantly slower than the required maximum rate of 1×10^{-7} cm/s. All of the soil classifications and Atterberg Limits test results met the MPCA guidelines. The percent fines in Clay No. 2 is less than the 50 percent minimum guideline, but the other tests for those samples met the minimum requirements. The results from clay samples collected on site are summarized in Table 4, locations are presented Figure 5, and complete results are included in Appendix C.

3.2.3 Granular Drainage Material Testing

On-site material that was previously screened and stockpiled was used as granular drainage material over the liner. Granular drainage material was tested for maximum particle size and percent passing the no. 200 sieve and hydraulic conductivity at a minimum rate of one test per 10,000 cubic yards placed. Approximately 137,000 cubic yards of granular material was placed over 42 acres. In total, 20 samples were collected and tested for particle size and permeability as granular material was placed over the liner. All samples met the permeability requirement of 1.0×10^{-3} cm/s minimum and the maximum particle size requirement of 3/8 inch. Complete results are shown in Appendix D.

3.2.4 Coarse and Fine Filter Aggregate Testing

Coarse and fine drainage aggregate was used around the dewatering pipes inside the pond. These aggregates were imported from off-site sources. The permit required one sample per source for the coarse and fine drainage aggregate. All of the drainage aggregate came from the same off-site source, and fives samples of coarse and three samples of fine were collected from on-site stockpiles. Coarse aggregate samples CFA-1, CFA-3, and CFA-5, and fine aggregate samples FFA-2 and FFA-3 did not pass specification but calculations show they met the required permeability and stability (piping) required to prevent infiltration of the granular drainage layer. The remaining samples met the specified gradations. Gradation results and calculations are included in Appendix E.

3.2.5 Bottom Ash Testing

Samples of bottom ash were collected and analyzed for Standard Proctor results, and these results were used as compaction criteria for field density testing. Specifications for bottom ash require 95 percent of the Standard Proctor maximum dry density. Compaction testing was performed by Xcel's independent soil testing firm (Braun Intertec Corporation) under the direction of McCain personnel. Testing was performed with a nuclear density gauge at a minimum frequency of one test per 3,000 cubic yards of material placed.

Samples of bottom ash were collected at the beginning of the project as different material types were encountered. Each field density test result was compared to the Standard Proctor results of the same material to determine if the field density met the 95 percent compaction criteria. All the in-place density tests passed the compaction criteria with the exception of BA-30. Although in-place density was above 95%, the material was too soft for embankment construction. The failing area was allowed to dry for two days, was retested as BA-30A, and passed compaction criteria. Field compaction results are presented in Table 6. Locations of the field compaction tests can be found in Figure 6. Complete data is located in Appendix F.

3.3 Geosynthetic Clay Liner (GCL) Quality Control

Quality control for GCL included manufacturing quality control (MQC) and construction quality assurance (CQA) activities. Details of these activities are described below. GCL was installed by GSI, as a subcontractor to the prime contractor

3.3.1 Manufacturing Quality Control (MQC)

MQC was completed during and after production of the GCL by the manufacturer GSE. The manufacturer was responsible for testing the GCL to confirm the product met the requirement of the project specifications. The results were documented and certified by GSE, and submitted to the GCL installer (GSI). GSI then submitted the certification packages to the prime contractor and Xcel's on-site representative. The certifications were reviewed by McCain personnel to insure the GCL met the project requirements

GCL MQC certification packages were organized by GCL type (BentoLiner EC® or BentoLiner NWL®). Each MQC package was further organized by order numbers, of which each order number contained several rolls of GCL. MQC packages included the following data:

1. Order Packing List

2. GCL Property Specifications
3. GCL MQC Test Data
4. Bentonite Clay Certification
5. Geotextile Test Data
6. MQA Tracking Forms
7. Manufacturer's Warranty

Testing performed on the GCL included grab strength, hydrated shear strength, peel strength, permeability, index flux, bentonite fluid loss, bentonite mass per area, and bentonite swell index. Results of these tests were included with each certification package. The GCL manufacturer's MQC certification packages are included in Interim Construction Data Submittals, in the GCL Data section.

3.3.2 Construction Quality Assurance (CQA)

CQA activities were completed on site during unloading, material handling, storage, transport, installation, and covering of the GCL. CQA was performed by personnel from McCain and Xcel.

The GCL was unloaded under observation of the CQA personnel. Rolls were unloaded from flatbed trucks by the prime contractor. GCL rolls were unloaded in accordance with the manufacturer's recommendations using a forklift to lift on the straps provided by the manufacturer. As MQC data was received, the roll numbers of GCL delivered to the site were checked against the roll numbers in the MQC certification packages.

As GCL was unloaded, it was placed in a designated storage area on-site. The storage area was level, dry, and well drained. As the GCL arrived it was covered with plastic to protect it from becoming hydrated.

During installation, GCL was transported from the storage areas to the deployment area using a forklift lifting on the provided straps. Prior to deployment, the subgrade was inspected by the installer and the CQA personnel. If subgrade correction was necessary, the area was rolled with a smooth drum roller or dragged to remove ruts and provide acceptable conditions. The GCL installer approved the subgrade by signing subgrade acceptance forms, which are included in Additional Interim Construction Data section.

After acceptance of the subgrade, GCL was deployed using the methods described in Section 2.8.1. On the side slopes, panels were oriented parallel to the slope. During deployment, care was taken to avoid wrinkles or folds in the GCL. Any wrinkles which occurred were pulled out to keep the panels smooth.

Damage to the GCL was repaired using patches as described in Section 2.8.1. Adjacent overlaps between GCL panels were visually verified to be between six and eight inches by observing the lap lines printed directly on the GCL rolls. The overlap area between panels was kept free of dirt to maintain self-seaming between panels. If necessary, the overlap areas were swept clean. Accessory bentonite was used between the edges of adjacent panels at the recommendation of the manufacturer. The ends of rolls were overlapped two feet, augmented with accessory bentonite, and heat tacked fusing the geotextiles together.

After deployment of the GCL, HDPE geomembrane was installed directly over the GCL. ATV's and tracked skid steers were used to deploy geomembrane over the GCL. When ATV's and skid steers were used on GCL, no sudden stops, starts, or abrupt turning was allowed. All GCL panels were covered daily with geomembrane to ensure the bentonite did not hydrate prior to placement of cover soils.

3.4 Geomembrane Quality Control

On-site observation of the geomembrane installation was performed by personnel from McCain and Xcel. Geomembrane installation was performed by Geo-synthetics, Inc. (GSI) as a subcontractor to the prime contractor.

Geomembrane used on the project was 60-mil high density white polyethylene (HDPE) manufactured by GSE. Geomembrane resin, rolls, and extrudate rod met the requirements of Geosynthetic Research Institute's (GRI) Test Method GM 13, "*Test Properties, Testing Frequency, and Recommended Warranty for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes"*. Geomembrane quality control data was submitted to GSI from the manufacturer, and in turn submitted to the prime contractor and Xcel's on-site representative. The certifications were reviewed by McCain personnel to insure the geomembrane met the requirements of GRI Test Method GM 13.

Geomembrane was delivered to the site on flatbed trailers. The geomembrane rolls were delivered with lifting straps in place, and were unloaded with a forklift. Rolls were unloaded and stacked in the designated storage area. Roll numbers were checked against the manufacturer's quality control submittals to verify all rolls were certified by the manufacturer.

Textured geomembrane was used on the sideslopes, and smooth geomembrane was used on the pond bottom and embankment benches. Panels on the slope and bottom were oriented parallel to the slope. Geomembrane was deployed over the GCL as described in Section 2.8.2. Trial seams were prepared at the beginning of each seaming period with each piece of seaming equipment by the corresponding

operator. One-inch-wide coupons were cut from the trial seams and tested on-site by the liner installer for mechanical seam strength (shear and peel) using a tensiometer. Field seaming of geomembrane panels was required to meet the strength requirements of GRI's test method GM 19, "*Seam Strength and Related Properties of Polyolefin Geomembranes"*. Trial seam tests are reported on the trial weld testing report forms included in the Interim Construction Data Submittals, in the Geomembrane Data section.

Destructive seam tests were performed on samples taken randomly from seams in the installed geomembrane at a rate of one sample per 500 lineal feet of seam. A total of 208 destructive seam samples were tested. The destructive seam samples were tested on-site by the liner installer for shear and peel strength using a tensiometer, and results were recorded on the destructive testing report forms included in the Interim Construction Data Submittals, in the Geomembrane Data section. Five of the on-site destructive samples did not meet the minimum strength requirements. In these areas, additional destructive samples were taken on the same seam before and after the failing sample until it was bound on both sides by tests that met the strength requirements. The failing part of the seam was then patched with a dual-wedge or extrusion welder, from one passing destruct test to the other and tested using either the air-channel (dual-wedge welder) or vacuum (extrusion welder) test. Destructive seam test reports and the locations of the destructive seam test samples are shown on the geomembrane record drawing in the Interim Construction Data Submittals, in the Geomembrane Data section.

All seams were non-destructively tested for air leaks using either the air-channel test for split-wedge fusion seams, or the vacuum box test for extruded seams. Split-wedge seams were required to hold 27 to 30 lbs/sq. inch of air pressure for five minutes without dropping more than three lbs per square inch. Non-destructive seam test reports are provided in the Interim Construction Data Submittals, in the Geomembrane Data section.

In addition to the report forms described above, the additional following quality control testing report forms were also completed by the geomembrane installer:

1. Panel placement forms
2. Panel seaming forms
3. Geomembrane repair reports

All geomembrane field forms were previously included in the Interim Construction Data Submittals, Geomembrane Data section.

3.5 Electronic Leak Location Testing

In addition to the routine quality control activities performed on the geomembrane prior to cover soil placement, electronic leak location testing was conducted over the geomembrane liner after placement of granular drainage later to identify the presence of construction related damage to the geomembrane. Xcel contracted with Leak Location Services, Inc. (LLSI) directly to conduct the electronic leak location survey.

The entire Pond 3S composite liner system leak test was performed in three phases. During the first and third phases of leak testing, the drainage layer had adequate moisture for testing due to recent rains. During most of the second phase of testing the drainage layer needed to be moisture conditioned or worked to expose moist material capable of conveying current. The drainage material on the slopes was watered using a canon attached to a water truck. The drainage layer on the pond floor that could not be reached with the water cannon was "plowed" with a skid steer bucket, equipped with a small plow on the bottom, exposing moist drainage sand underneath the hardened crust on the surface of the sand. The skid steer plowed each line of the leak testing grid. Testing grid lines were laid out across the pond floor for leak testing as described in LLSI's report in the Interim Construction Data Submittals, Electronic Leak Location Testing Reports section. Calibration testing was completed in accordance with the requirements of Section 02775 of the Technical Specifications and ASTM D7007-03 to assure that proper test conditions were met throughout the test period. These conditions include, correct test grid spacing, properly functioning test equipment, and the required minimum signal to noise ratio.

As a quality control check of the leak location testing, 12 blind holes were placed in the geomembrane liner at locations unknown to the leak testing contractor. The leak testers successfully located all of the blind holes, along with eight small construction-related leaks in the geomembrane. The blind holes were one inch in diameter. Blind holes No. 2, 6, 7 and 11 were through the geomembrane only; blind holes No. 1, 3, 4, 5, 8, 9, 10, and 12 were through the geomembrane and GCL. In addition to the blind holes, the leak contractors made two ¼ inch calibration holes for each phase of testing. The leak testing equipment was calibrated each day at startup, after lunch, and at the end of each day to verify testing procedures and determine the signal to noise ratio.

Once a hole or leak signal was detected it was exposed and repaired by the geomembrane contractor. Due to accumulation of stormwater during construction, one construction defect was unable to be repaired by the geomembrane contractor. This area, located on the south side of the dewatering trench, was isolated long enough to place a dry bentonite plug over the defect and the surrounding geomembrane.

The bentonite plug was then covered with three feet of granular drainage material and leak tested. No defects were detected by the leak testers in the area after making the repair. Photos 50 through 53 of Appendix A depict the steps used to install the bentonite plug.

Any penetrations found in the GCL were augmented with accessory bentonite. Cover soils were then placed back over the repairs, and the areas were leak tested again to insure no other holes were present in the area. A report was prepared and submitted by LLSI on the leak testing performed in Pond 3S, and is contained in Interim Construction Data Submittals, Electronic Leak Location Testing Data section. The report describes the testing completed and includes a summary of all the holes found along with a map showing the test grid and the locations of the blind holes, construction-related holes, and calibration holes, and line plots of all the leak survey data. A copy of Technical Specification Section 02775 can be found in the Additional Interim Construction Data section and photographs of the leaks are contained in Interim Construction Data Submittals, Electronic Leak Location Testing Data section.

Section 4 **– Conclusion**

Construction of Pond 3S at Xcel Energy's Sherburne County Generating Plant has been completed in material conformance with the "Construction Documents, 2010 Pond 3 South Construction" prepared by McCain and Associates, Inc., and in compliance with the requirements for notification, construction, materials, and testing contained in NPDES Permit No. 0002186. This report presents the results of all observation, documentation, and testing performed during the course of construction of this facility.

Previous Interim Construction Data Submittal Cover Letters

COPY

Xcel Energy®

July 6, 2010

Mr. Brandon Smith
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Re: Sherburne County Generating Plant (Sherco) Scrubber Solids Pond No. 3 South
NPDES Permit MN 0002186
Interim Construction Data Submittal #1

Dear Mr. Smith:

Xcel Energy is submitting the attached quality control data related to the construction of Sherco Scrubber Solids Pond No. 3 South (Pond 3S). As discussed during our conference call in March, it is our intention to submit the quality control data in phases after installation of the composite liner and drainage layer is completed and electronic leak location testing has been performed in order to expedite the MPCA's review and approval of Pond 3S. We will submit additional interim data submittal(s) as construction progresses.

The data included with this interim submittal includes the following:

- Geomembrane and geosynthetic clay liner (GCL) inventory and laboratory quality control test data
- Electronic leak location report for the first phase of testing

We have included placeholders in the binder for geomembrane and GCL installation data that will be submitted with subsequent submittals.

As shown on the Construction Drawings submitted in February, portions of the east and south Pond 3S embankments will be constructed by placing bottom ash over the liner and drainage layer. In order to complete Pond 3S construction this year and get adequate frost protection in place for the clay anchor prior to freezing temperatures, Xcel Energy would like to begin placing bottom ash in Pond 3S soon after the final leak location survey is completed. For this reason, Xcel Energy would like to receive approval from the MPCA as soon as possible after the final phase of liner installation and leak location testing is completed. We will submit leak location survey results for the final phase and construction quality control data in a subsequent data submittal after the final leak location survey is completed and all the soil test data and material thickness survey results have been received.

Xcel Energy appreciates your prompt review of this and subsequent data submittals. Please contact me at 763-261-3133 or email at steven.l.bluhm@xcelenergy.com with any comments or questions you have, or if you need additional information. We anticipate providing another interim submittal in late July.

Sincerely,

Steve Bluhm

Steve Bluhm
Senior Engineer

CC: Dan Orr w/attachments
Travis Peterson w/o attachments
Scott Schwake w/o attachment
File w/attachments

Xcel Energy®

August 18, 2010

Mr. Brandon Smith
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Re: Sherburne County Generating Plant (Sherco) Scrubber Solids Pond No. 3 South
NPDES Permit MN 0002186
Interim Construction Data Submittal #2

Dear Mr. Smith:

Xcel Energy is submitting the attached quality control data related to the construction of Sherco Scrubber Solids Pond No. 3 South (Pond 3S). Our first data submittal was sent to you on July 6, 2010.

The data included with this interim submittal includes the following:

- Geomembrane field quality control data
- Electronic leak location report for the second phase of testing

Please insert this data into the binder which was sent with the first data submittal. The "placeholder" flysheets can be discarded and replaced the attached flysheets and forms.

We will send you another data submittal after the final phase of leak location testing is completed. The submittal will also include soil test data and material thickness survey verification for soil used in construction of the pond. We anticipate sending the next submittal by August 27.

As you are aware, Xcel Energy would like to begin placing bottom ash in Pond 3S soon after the pond is completed, and appreciates your prompt review of these submittals.

Please call me at 763-261-3133 or email me at steven.l.bluhm@xcelenergy.com with any comments or questions you have or if you need additional information.

Sincerely,

Steve Bluhm
Senior Engineer

Cc: Dan Orr w/attachments
Travis Peterson w/o attachments
Scott Schwake w/o attachments
File w/attachments

COPY

Xcel Energy®

September 1, 2010

Mr. Brandon Smith
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Re: Sherburne County Generating Plant (Sherco) Scrubber Solids Pond No. 3 South
NPDES Permit MN 0002186
Interim construction data submittal #3

Dear Mr. Smith:

Xcel Energy is submitting the attached quality control data related to the construction of Sherco Scrubber Solids Pond No. 3 South (Pond 3S). Our first two data submittals were sent to you on July 6 and August 18, 2010 respectively. This will be the final interim data submittal. The finished Construction Certification Report will be sent to you after completion of construction later this year, and will include a narrative description of all aspects of construction, a construction photo log, remaining construction material test data including bottom ash, random fill, topsoil, and class 5, construction survey data, and as-built plans.

The data included with this interim submittal includes the following:

- Material test results for random fill used in embankment construction, clay used for the clay anchor, and granular drainage material placed over the liner
- Survey verification data for clay and granular drainage material grades and thicknesses
- Electronic leak location report for the third and final phase of leak testing, line plots of re-surveyed areas around all repairs from all three phases of leak testing, and line plots from the first phase of leak testing (these were inadvertently omitted from the phase 1 report)

Please insert the leak location report and line plots under the "Leak Test Reports" tab in the binder which was sent with the first data submittal The material testing and survey verification data can be inserted into the final 3-ring bound Construction Certification Report when you receive it.

Pond 3 South construction activities completed to-date include embankment construction, clay anchor construction, composite liner system installation (including connection to the Pond 3 North composite liner on the north side, and connection to the Pond 2 clay barrier on the west side), installation of the dewatering piping system, and placement of the granular drainage layer over the composite liner. All of these activities have been completed in accordance with the approved plans and specifications with the two exceptions described below:

1. In the southeast corner of the pond bottom, the south 50 feet of the east dewatering header pipe was installed approximately two feet higher (invert elevation 940 instead of elevation 938) than shown in the Construction Drawings. In this area, two feet of granular drainage material was placed over the composite liner immediately after liner installation was completed in order to prevent premature hydration of the GCL due to wet subgrade conditions. This did not allow the contractor time to install the dewatering header pipe prior to placing the granular drainage layer. The pipe was installed over the 2-foot granular drainage layer using the same dewatering header pipe typical section (Section 5 on Sheet No. P13), including placement of a geomembrane rub sheet under the pipe, 2-stage filter aggregate envelope around the pipe, and 2-feet of granular drainage material over the aggregate. This will not impact Pond 3 South dewatering since the goal is to operate the dewatering system after pond closure until the piezometric head inside the pond is below the top of the composite liner (elevation 984).

2. As you are aware from my August 18th e-mail and our subsequent phone conversation, one construction defect (a 4-inch tear in the geomembrane) found during the final phase of electronic leak location testing was repaired with a bentonite plug instead of placing a geomembrane patch over the tear. The defect was located near the pond base, which was submerged due to accumulation of stormwater during construction. The immediate area surrounding the defect was isolated long enough to place dry bentonite over the defect and the surrounding geomembrane. The bentonite was then covered with three feet of granular drainage material. Subsequent leak location testing in the area immediately after making the repair in the area did not detect any other defects.

Electronic leak location testing has been successfully completed over the entire pond liner. The testing was completed in three phases as construction progressed. All three phases of leak testing were completed by Leak Location Services, Inc. (LLSI). A total of 12 blind holes were placed in the liner prior to LLSI's arrival (three during the first phase, three during the second phase, and six during the third phase). The blind holes were 1-inch diameter holes, either through the geomembrane only or through the geomembrane and GCL. The blind holes were intended to approximate a small construction related hole or puncture. All of the blind holes were successfully located by LLSI. In addition to the 12 blind holes, seven construction-related leaks were also found by LLSI (two during the first phase, three during the second phase, and two during the third phase). The construction leaks were all relatively small, and ranged from a 1/8-inch puncture to a small tear. After leaks or blind holes were identified and patched, LLSI re-surveyed the areas surrounding the leaks to insure there were no other leaks in the area that may have been masked by the identified leak. In all cases, no additional leaks were found around the repairs. The final report for the third phase of leak testing is included with this submittal. In addition to the data from the third phase of leak testing, line plots of the re-surveyed areas around all repairs from all phases are included with the report.

Due to several large storms during construction, some GCL on the base of the pond became hydrated prior to placement of drainage sand over the geomembrane. After the water was pumped out of the pond and the geomembrane was peeled back, the hydrated GCL was allowed to dry and new GCL was installed directly over the previously hydrated GCL.

Xcel Energy plans to begin placement of Bottom Ash into Pond 3S on September 7, 2010, and appreciates your prompt review of these submittals. Please call me at 763-261-3133 or email me at steven.l.bluhm@xcelenergy.com with any comments or questions you have, or if you need additional information.

Sincerely,

Steve Bluhm
Senior Engineer

c. Dan Orr w/attachments
Travis Peterson w/o attachments
Scott Schwake w/o attachments
File w/attachments

Additional Interim Construction Data

Subgrade Acceptance Forms

(Insert in the Interim Construction Data Submittals, Geosynthetic Clay Liner (GCL) Appendix)

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker,Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P1-13

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

5/6/10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker,Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P14-30

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

5/8/10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker,Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P31-52

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

5/12/10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P53-67

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

5/14/10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P68-82

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

5/15/10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P83-103

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

5/18/10
Date

QA
Title

Geo-Synthetics, Inc.
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P104 - P118

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

5/19/10
Date

QA
Title

Geo-Synthetics, Inc.
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker,Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P119-127

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Michelle Alston
Signature

5/20/10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker,Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P 128-158

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

5/21/10
Date

QA
Title

Geo-Synthetics, Inc
Company

W239 N428 PEWAUKEE ROAD • WAUKESHA, WI 53188 • 262-524-7979 • Fax: 262-524-7961 • 800-444-5523 • www.geo-synthetics.com

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker,Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P159-173

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Michelle Alston
Signature

5/24/10
Date

QA
Title

Geo-Synthetics, Inc.
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker,Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P174-187

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

5/25/10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker,Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P188-204

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

5/26/10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker,Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P205-210

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

5/27/10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker,Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P 211-227

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

5/28/10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: Becker, Minnesota

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P228 - 257

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

5/29/10
Date

QA
Title

Geo-Synthetics, Inc
Company

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GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: Becker, Minnesota

Job #: _____ Owner: Xcel Energy Sherco

AREA ACCEPTED: PANELS 258 - 284

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

R. Riggs
Signature

6-1-10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: Becker, Minnesota

Job #: _____ Owner: Xcel Energy Sherco

AREA ACCEPTED: Panels 285-315

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Regina Gray
Signature

10-3-10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Emerg. Sherco

LOCATION: Becker, Minnesota

Job #: 30011 Owner: Xcel Emergy Sherco

AREA ACCEPTED: P316-350

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

6-7-10
Date

QA
Title

Geo-Synthetics, Inc
Company

W239 N428 PEWAUKEE ROAD • WAUKESHA, WI 53188 • 262-524-7979 • Fax: 262-524-7961 • 800-444-5523 • www.geo-synthetics.com

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: Becker, Minnesota

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P351-354

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

6/9/10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: Becker, Minnesota

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P 355-358

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

6-10-10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: Becker, Minnesota

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P 359-382

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

6/16/10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: Becker, Minnesota

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P 383-399

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

6/17/10
Date

QA
Title

Geo-Synthetics, Inc
Company

W239 N428 PEWAUKEE ROAD • WAUKESHA, WI 53188 • 262-524-7979 • Fax: 262-524-7961 • 800-444-5523 • www.geo-synthetics.com

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: Becker, Minnesota

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P400-410

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

6/21/10
Date

QA
Title

Geo-Synthetics, Inc
Company

W239 N428 PEWAUKEE ROAD • WAUKESHA, WI 53188 • 262-524-7979 • Fax: 262-524-7961 • 800-444-5523 • www.geo-synthetics.com

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: Becker, Minnesota

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P411-448

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

6-22-10
Date

QA
Title

Geo-Synthetics, Inc
Company

W239 N428 PEWAUKEE ROAD • WAUKESHA, WI 53188 • 262-524-7979 • Fax: 262-524-7961 • 800-444-5523 • www.geo-synthetics.com

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: Becker, Minnesota

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P 449 - 461

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alstom
Signature

6/24/10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: 4162-493

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Regina Gray
Signature

10-25-10
Date

QA
Title

Geo-Synthetics Inc.
Company

W239 N428 PEWAUKEE ROAD • WAUKESHA, WI 53188 • 262-524-7979 • Fax: 262-524-7961 • 800-444-5523 • www.geo-synthetics.com

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P 494 - 508

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

7-1-10
Date

QA
Title

Geo-Synthetics, Inc
Company

W239 N428 PEWAUKEE ROAD • WAUKESHA, WI 53188 • 262-524-7979 • Fax: 262-524-7961 • 800-444-5523 • www.geo-synthetics.com

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P509 - 535

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Regina Gray
Signature

7-2-10
Date

QA
Title

Geo-Synthetics Inc.
Company

W239 N428 PEWAUKEE ROAD • WAUKESHA, WI 53188 • 262-524-7979 • Fax: 262-524-7961 • 800-444-5523 • www.geo-synthetics.com

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P536-541

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Michelle Alston
Signature

7-3-10
Date

QA
Title

Geo-Synthetics, Inc
Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P542-558

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Reginer Gray — Signature

7-5-10 — Date

QA — Title

Geo-Synthetics Inc. — Company

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P559-575

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Regina Gray
Signature

7-8-10
Date

QA
Title

Geo-Synthetics Inc.
Company

W239 N428 PEWAUKEE ROAD • WAUKESHA, WI 53188 • 262-524-7979 • Fax: 262-524-7961 • 800-444-5523 • www.geo-synthetics.com

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P576-602

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

7-9-10
Date

QC
Title

Geo-Synthetics, Inc
Company

W239 N428 PEWAUKEE ROAD • WAUKESHA, WI 53188 • 262-524-7979 • Fax: 262-524-7961 • 800-444-5523 • www.geo-synthetics.com

GEO-SYNTHETICS, INC.

CERTIFICATE OF ACCEPTANCE OF SUBGRADE SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION

PROJECT NAME: Xcel Energy Sherco

LOCATION: **Becker Minnesota**

Job #: 30011 Owner: Xcel Energy Sherco

AREA ACCEPTED: P603-613

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

Lisa Alston
Signature

7-10-10
Date

QA
Title

Geo-Synthetics, Inc
Company

Technical Specifications (Section 02775)
For Electrical Leak Location Surveying

SECTION 02775
ELECTRICAL LEAK LOCATION SURVEYING OF
SOIL-COVERED GEOMEMBRANE LINER

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Performing leak detection sensitivity testing using actual leaks.

B. Performing leak location surveying with automated electronic data collection.

C. Recording, plotting, and analyzing survey data.

D. Reporting results of leak location surveying.

1.02 BASIS FOR COMPENSATION

A. Compensation for all Work covered under this Section of these Specifications will be included under the lump sum Contract Price bid.

1.03 REFERENCES

A. American Society for Testing and Materials, current edition, hereafter referred to as ASTM.

B. ASTM D7007: Standard Practice for Electrical Methods for Locating Leaks in Geomembranes Covered with Water or Earth Materials (current edition).

1.04 DEFINITIONS

A. Definitions:

1. Submit for Documentation

a. Submittal is for the purpose of formal verification that the subject of the submittal conforms to the requirements of the Specifications, for formal documentation of the Work, or both.

b. No action is required by Company. Company will notify Contractor if deficiencies are identified, however the Contractor is responsible for ensuring that the subject of the submittal conforms to the requirement of the Specifications.

2. Submit for Review

a. Submittal is for the purpose of providing opportunity to Company for review and comment on the subject of the submittal.

b. Company will respond to the submittal either with a list of comments or an indication that it has no comments.

c. If Company's comments indicate a deficiency with respect to the requirements of the Specifications, Contractor shall amend the submittal and resubmit. Company will again respond to the resubmittal.

d. If Company's comments are in regards to an issue that, based upon the Contract, is at Contractor's discretion, Contractor shall furnish additional information, provide justification, and otherwise cooperate in addressing and resolving Company's comments.

1.05 SUBMITTALS

A. Submit for documentation Contractor's statement of warranty to perform the work to the best of their ability in accordance with this specification, the referenced ASTM standard, and standards of practice in the industry.

B. Submit for documentation Contractor's statement of site conditions and surveying equipment and methods that influence leak detection sensitivity and reliability, and which may be adjusted or corrected in the field to improve the sensitivity and reliability of leak detection.

C. Submit for review Contractor's leak location surveying plan, including the following items:

1. List/description of equipment
2. Setup requirements
3. Crew size
4. Method of automated electronic data recording
5. Method and format of data plotting, and analysis
6. QA/QC plan
7. Contingency plan in response to equipment failure (i.e. availability of replacement equipment, impact on schedule)
8. Other pertinent information.

D. Upon receipt of the Company's proposed leak-testing phase schedule, submit for review a detailed schedule for leak location surveying work, including setup, leak detection sensitivity testing, leak detection surveying, data analysis, and reporting.

E. Submit for review an example of Contractor's proposed forms and/or format for:

1. Reporting results of leak detection sensitivity testing
2. Calculating signal:noise ratio
3. Correlating leak location surveying data with grid layout
4. Presenting line plots showing survey results.

1.06 SEQUENCING AND SCHEDULING

A. The Company will provide the Contractor with a plan for sequencing and scheduling of leak location surveying. The plan will remain subject to change for the duration of the project to accommodate weather, construction progress, and sequencing requirements.

B. Leak location surveying shall be performed in phases. The number and size of phases will be subject to change based upon weather, construction progress, and sequencing requirements.

1.07 JOB CONDITIONS

A. It shall be solely the Contractor's responsibility to review available tests and reports, conduct additional tests, and otherwise determine to its own satisfaction the location and nature of all surface and subsurface features and the soil and water conditions that may be encountered.

B. It shall be solely the Contractor's responsibility to review project construction plans and specifications, sequencing and scheduling plans, and other construction-related information, and determine to its own satisfaction Contractor's ability to perform the required work within the context of the overall construction project.

C. Company's information on site conditions may be reviewed at Company's office as scheduled with Company.

1.08 WORK BY COMPANY

A. Company will prepare each phase for leak location surveying by placing cover soil over the geomembrane, isolating the cover soil from ground, and applying water and maintaining the moisture content of the cover soil.

B. The Contractor will place actual leaks (as defined in ASTM 7007, Annex A4) in the liner within the surveying area under observation by the Company for use in performing leak detection sensitivity testing as described in Article 3.02 of this Specification. Company may direct Contractor in placement of holes as described in Article 3.02.

C. Company will place additional holes in the liner within the surveying area for the purposes described in Article 3.03 of this Specification.

D. Company will furnish 110-volt power source for use during leak location surveying.

E. Company will furnish laborers to install string lines for testing grid, and to remove cover soils from leaks.

PART 2 PRODUCTS

2.01 DATA RECORDING EQUIPMENT

A. Contractor shall furnish equipment for performing the Work that automatically records leak location surveying data in electronic format at the time of collection (continuous survey data recording) and that can be post-processed for plotting and analysis.

PART 3 EXECUTION

3.01 ACCEPTANCE OF SITE AND SURVEY CONDITIONS

A. Prior to performing sensitivity testing or leak location surveying, Contractor shall notify Company of site conditions or surveying conditions which are within Company's ability to control (such as electrical isolation of cover soil or moisture content of cover soil) and which would inhibit Contractor's ability to locate leaks. Such conditions shall be typical of those under which leak location surveying is generally performed.

B. If, after correction of site and surveying conditions by Company, Contractor is unable to obtain successful results for sensitivity testing or locating Company-placed holes (as described in Articles 3.02 and 3.03, respectively), then Contractor shall discuss with Company additional modifications to the site and surveying conditions which may produce successful results. Company will make such additional modifications that are reasonable and within its ability to control.

3.02 LEAK DETECTION SENSITIVITY TESTING

A. Contractor shall perform leak detection sensitivity testing using actual leaks placed by Contractor under Company observation and direction. Use of artificial leaks will not be allowed. Actual leaks shall be placed at locations within the test area that represent worst-case site conditions with respect to drainage layer and subgrade moisture content, electrical isolation of the drainage layer from ground, distance from the source electrode to the testing locations, and drainage layer thickness. Multiple actual leaks shall be placed if required to assess worst-case conditions. Company may direct Contractor where to place actual leaks for sensitivity testing. Sensitivity testing shall be performed within the active test area in conformance with the requirements of ASTM D7007, Annex A4.

B. The actual leak shall be constructed by drilling a hole of the size specified by ASTM D7007 Annex A4 through the geomembrane, and ensuring that the geomembrane material is removed from the hole and not simply displaced. The hole shall have no significant penetration of the underlying clay liner or GCL.

C. Data collected for leak detection sensitivity testing shall be automatically recorded in electronic format at the time of collection.

D. The leak detection distance shall be computed by Contractor to produce an "R" value (as defined by ASTM D7007, Annex A4) greater than 3.0. Contractor shall make adjustments to its surveying equipment and methods as necessary to meet this requirement.

E. Leak detection sensitivity testing shall be conducted, at a minimum, at the beginning and end of each testing period of leak location surveying for each set of equipment. Additional sensitivity testing shall be performed if site conditions change during a testing period. If leak detection sensitivity testing reveals an "R" value of 3.0 or less, the area surveyed with that set of equipment in the period since the previous successful leak detection sensitivity test shall be resurveyed at Contractor's expense.

F. Inability by Contractor to successfully complete leak detection sensitivity testing shall be cause for cancellation of the contract for surveying services. Upon cancellation, Contractor will be judged to be in default of the Contract and no payments shall be owed to Contractor.

3.03 COMPANY-PLACED HOLES

A. Additional holes, other than those used for leak detection sensitivity testing, may be placed by Company in the surveying area in order to simulate damage which may occur as a result of placing cover soils over the geomembrane. Such holes will be a minimum size of 1 inch in diameter and the locations will be unmarked. Contractor shall be required to detect these holes as part of routine surveying. Failure to locate Company-placed holes will invalidate the surveying work performed by Contractor on that day. Company will reveal the hole locations to Contractor if Contractor is unable to locate them, and provide Contractor the opportunity to determine the cause of failure to locate the holes, make necessary adjustments to site conditions and surveying equipment and methods, and re-survey. Adjustments and resurveys shall be solely at Contractor's expense.

B. Inability by Contractor to detect Company-placed holes during daily survey work, after attempting remedy as described in Article 3.01 and Paragraph 3.03A shall be cause for cancellation of the contract for surveying services. Company will be liable only for the cost of mobilization and area successfully surveyed through the time of cancellation.

3.04 LEAK LOCATION SURVEYING

A. Contractor shall perform the leak location survey procedure in conformance with the surveying plan submitted above and in conformance with ASTM D7007 with the exception noted in Article 3.02.

B. Leak location surveying shall be performed with grid spacing, measurement electrode spacing (for dipole measurements), and distance from the current source electrode not greater than the respective spacing and distance determined from the sensitivity tests.

C. Data collected for leak location surveying shall be automatically recorded in electronic format at the time of collection. The collected data shall be plotted and analyzed for characteristic leak signals.

D. Contractor shall mark detected leak locations with lath, flagging, or similar marking, and shall notify Company for removal of cover soil from the area.

E. Resurveying shall be performed in the areas near leak locations to verify that repairs were adequate and that an additional leak is not present which may have been masked by the detected leak.

3.05 REPORTING

A. Daily Reports: Contractor shall field-report to Company summary results of surveying on a daily basis. Daily reports shall include:

1. The results of beginning and end-of-day leak detection sensitivity tests, including data and calculations.
2. A sketch of the area surveyed that day, showing grid lines and surveying limits.
3. A summary of leaks detected and repair/resurvey status.

B. Interim Reports: Written interim reports with supporting data shall be submitted to Company within one week of completion of leak location surveying within each phase area. Interim reports shall include:

1. A discussion of the results of leak location sensitivity tests and actions taken in response to the tests.
2. A map of the phase area showing the limits of the leak location survey, the layout of the surveying grid, the location of the current source electrode, and other pertinent layout information.
3. A description of all leaks found, including location, size, configuration, and photographs of each leak. The report shall clearly distinguish between Company-placed holes and installation/construction-related holes. Company will furnish a tabulation of Company-placed holes for Contractor's use in preparing the report.
4. A discussion of Contractor's success or failure to consistently detect Company-placed holes.

C. Final Report: A final report shall be submitted within two weeks of completion of the final phase of surveying. The final report shall compile the information from the interim reports and provide the following additional information:

1. A description of the leak location surveying methods and procedures, the liner components and configuration, and cover and subgrade soil types and conditions.

2. A map showing the grid layout used for the project. Each gridline shall be assigned a unique label and have distinct endpoints.
3. Electronic data files containing the leak location survey data. The data shall grouped by gridline, and shall identify the grid line along which the data was taken, the baseline from which data collection started, and the direction of travel.
4. Line plots of leak location survey data for each grid line. Characteristic leak signals shall be labeled on the plots where present.

END OF SECTION 02775

Tables

Table 1
Random Fill Embankment In-Place Density Testing Summary
Sherco Pond 3 South Construction

Test No.	Date	Northing	Easting	Elevation	In-Place Density (pcf)	In-Place Moisture (%)	Max Dry Density (pcf)	Optimum Moisture (%)	Percent Compaction
RF-1	10/16/09	862499	2031162	954	127.0	5.0	133.4	8.1	95
RF-2	10/16/09	862451	2031030	958	126.0	4.0	129.0	9.5	98
RF-3	10/16/09	862549	2031390	952	114.0	4.0	113.1	12.8	101
RF-4	10/19/09	862317	2031709	955	114.0	5.0	113.1	12.8	101
RF-5	10/19/09	862363	2031442	953.5	123.0	6.0	129.0	9.5	95
RF-6	10/19/09	862279	2030692	961.5	115.0	4.0	113.7	9.7	101
RF-7	10/20/09	862298	2031829	955	115.0	5.0	115.6	11.7	99
RF-8	10/20/09	862279	2031296	955	116.0	6.0	115.6	11.7	100
RF-9	10/20/09	862259	2030831	963	115.0	6.0	115.6	11.7	99
RF-10	10/22/09	862412	2031898	955.5	125.0	10.0	129.0	9.5	97
RF-11	10/22/09	862410	2031635	954.5	122.0	12.0	129.0	9.5	95
RF-12	10/22/09	862396	2031295	955	118.0	8.0	115.6	11.7	102
RF-13	10/22/09	862430	2031019	962	116.0	5.0	115.6	11.7	100
RF-14	10/22/09	862335	2030871	965	118.0	5.0	115.6	11.7	102
RF-15	10/22/09	862312	2031056	963	120.0	7.0	115.6	11.7	104
RF-16	10/26/09	862335	2031198	961.5	123.0	6.0	129.0	9.5	95
RF-17	10/26/09	862393	2031081	964	124.0	5.0	129.0	9.5	96
RF-18	10/26/09	862425	2030846	967.5	124.0	6.0	129.0	9.5	96
RF-19	10/27/09	862368	2031031	966.5	116.0	12.0	115.6	11.7	100
RF-20	10/27/09	862319	2030745	973	111.0	4.0	113.1	12.8	98
RF-21	10/27/09	862308	2030578	978.5	109.0	3.0	113.1	12.8	96
RF-22	10/28/09	862369	2030968	968.5	123.0	5.0	129.0	9.5	95
RF-23	10/28/09	862303	2030888	972	123.0	5.0	129.0	9.5	95
RF-24	10/28/09	862388	2030802	969.5	128.0	4.0	133.8	7.6	96
RF-25	10/28/09	862307	2030704	978	124.0	7.0	129.0	9.5	96
RF-26	10/29/09	862434	2030942	969	111.0	8.0	113.7	9.7	98
RF-27	10/29/09	862525	2030932	965.5	118.0	11.0	115.6	11.7	102
RF-28	10/29/09	862402	2031102	965.5	126.0	8.0	129.0	9.5	98
RF-28SC	10/29/09	862402	2031102	965.5	123.8	8.4	129.0	9.5	96
RF-29	10/29/09	862303	2031136	966.5	124.0	10.0	129.0	9.5	96
RF-30	10/29/09	862312	2030957	972.5	123.0	10.0	129.0	9.5	95
RF-31	10/29/09	862324	2030526	989	118.0	9.0	115.6	11.7	102
RF-32	11/2/09	862397	2031183	964.5	111.0	5.0	113.1	12.8	98
RF-33	11/2/09	862371	2030889	972	112.0	9.0	113.1	12.8	99
RF-34	11/2/09	862387	2030685	981.5	125.0	7.0	129.0	9.5	97
RF-35	11/3/09	862537	2031458	955	136.0	6.0	133.8	7.6	102
RF-36	11/3/09	862579	2031578	953	139.0	6.0	133.8	4.7	104
RF-37	11/3/09	862337	2030806	975.5	118.0	6.0	115.6	11.7	102
RF-38	11/3/09	862419	2030951	973.5	118.0	12.0	115.6	11.7	102
RF-39	11/4/09	862531	2031585	954.5	136.0	8.0	115.6	7.6	118
RF-40	11/4/09	862308	2031173	972	110.0	6.0	113.1	12.8	97
RF-41	11/4/09	862394	2031093	974.5	113.0	6.0	113.1	12.8	100
RF-42	11/4/09	862351	2030563	996.5	107.0	6.0	113.1	12.8	95
RF-43	11/5/09	862481	2031729	953.5	136.0	9.0	133.5	8.3	102
RF-44	11/5/09	862481	2031729	953.5	128.0	6.0	133.5	8.3	96
RF-45	11/5/09	862424	2031136	976.5	131.0	6.0	133.5	8.3	98
RF-46	11/5/09	862357	2031079	975	141.0	5.0	146.8	4.7	96
RF-47	11/5/09	862399	2030908	976	132.0	6.0	132.8	8.2	99
RF-48	11/5/09	862387	2030667	985.5	134.0	6.0	132.8	8.2	101
RF-49	11/5/09	862358	2031654	958	136.0	9.0	133.5	8.3	102

Note: Complete laboratory test data is located in Appendix B

Table 1 (cont.)
Random Fill Embankment In-Place Density Testing Summary
Sherco Pond 3 South Construction

Test No.	Date	Northing	Easting	Elevation	In-Place Density (pcf)	In-Place Moisture (%)	Max Dry Density (pcf)	Optimum Moisture (%)	Percent Compaction
RF-50	11/6/09	862292	2031579	957.5	137.0	5.0	133.8	7.6	102
RF-51	11/6/09	862404	2030982	979	127.0	9.0	129.0	9.5	98
RF-52	11/6/09	862415	2031135	978.5	129.0	7.0	129.0	9.5	100
RF-53	11/6/09	862350	2031177	974	127.0	4.0	129.0	9.5	98
RF-54	11/6/09	862337	2030938	978	118.0	7.0	115.6	11.7	102
RF-55	11/9/09	862357	2031957	957.5	136.0	6.0	133.8	7.6	102
RF-56	11/6/09	862371	2031032	978.5	137.0	5.0	133.8	7.6	102
RF-57	11/9/09	862376	2031139	978	115.0	4.0	115.6	11.7	99
RF-58	11/9/09	862319	2031226	976	132.0	6.0	133.8	7.6	99
RF-59	11/9/09	862345	2030947	981	129.0	6.0	133.8	7.6	96
RF-60	11/9/09	862521	2031559	959.5	136.0	5.0	133.8	7.6	102
RF-61	11/9/09	862366	2030933	981.5	114.0	4.0	115.6	11.7	99
RF-62	11/10/09	862329	2030773	987	136.0	4.0	133.8	7.6	102
RF-63	11/10/09	862419	2031737	959	136.0	6.0	133.8	7.6	102
RF-64	11/10/09	862371	2030839	986	131.0	5.0	133.8	7.6	98
RF-65	11/10/09	862359	2030682	987	124.0	3.0	129.0	9.5	96
RF-66	11/10/09	862316	2031828	958.5	137.0	6.0	133.8	7.6	102
RF-67	11/10/09	862336	2030807	988	142.0	5.0	146.8	4.7	97
RF-68	11/10/09	862429	2030696	992	118.0	7.0	115.6	11.7	102
RF-69	11/10/09	862458	2031549	961	124.0	3.0	129.0	9.5	96
RF-70	11/10/09	862389	2030826	981	128.0	5.0	129.0	9.5	99
RF-71	11/11/09	862356	2030738	990.5	110.0	3.0	113.1	12.8	97
RF-72	11/11/09	862317	2031679	961	136.0	6.0	133.8	7.6	102
RF-73	11/11/09	862364	2030851	986.5	117.0	10.0	115.6	11.7	101
RF-74	11/12/09	862346	2031452	962.5	130.8	3.5	133.8	7.6	98
RF-75	11/12/09	862422	2030648	1005	120.0	5.7	115.6	11.7	104
RF-76	11/12/09	862370	2030665	998.5	115.1	4.2	115.6	11.7	100
RF-77	11/13/09	862515	2031500	963.5	124.4	4.4	129.0	9.5	96
RF-78	11/13/09	862385	2030608	1010	136.1	4.7	133.5	8.3	102
RF-79	11/13/09	862419	2030746	994.5	122.5	5.5	129.0	9.5	95
RF-80	11/13/09	862366	2030782	996.5	136.8	4.8	133.5	8.3	102
RF-81	11/13/09	862397	2031240	981	112.8	3.3	113.1	12.8	100
RF-82	11/13/09	862450	2031685	961.5	140.0	3.0	146.8	4.7	95
RF-83	11/13/09	862334	2031730	962	116.0	9.0	115.6	11.7	100
RF-84	11/13/09	862341	2031358	969	117.2	2.2	115.6	11.7	101
RF-85	11/16/09	862425	2031706	963	119.0	2.0	115.6	11.7	103
RF-86	11/16/09	862398	2031444	966	113.0	3.0	113.1	12.8	100
RF-87	11/16/09	862361	2031321	976	110.0	2.0	113.1	12.8	97
RF-88	11/16/09	862330	2031878	962.5	116.0	4.0	115.6	11.7	100
RF-89	11/16/09	862335	2031427	970	108.0	3.0	113.1	12.8	95
RF-90	11/17/09	862326	2031891	963	128.0	4.0	129.0	9.5	99
RF-91	11/17/09	862368	2031616	964	122.0	8.0	129.0	9.5	95
RF-92	11/17/09	862390	2031356	977	112.0	4.0	113.1	12.8	99
RF-93	11/18/09	862635	2031899	950	112.0	4.0	116.6	11.2	96
RF-94	11/18/09	862689	2031914	953.5	117.0	5.0	116.6	11.2	100
RF-95	11/18/09	862342	2031418	976	123.0	6.0	129.0	9.5	95
RF-96	11/19/09	862455	2031530	972	110.0	9.0	109.9	12.8	100
RF-97	11/19/09	862382	2031474	974	108.0	8.0	109.9	12.8	98
RF-98	11/19/09	862417	2031459	974	116.0	4.0	116.6	11.2	99
RF-99	11/19/09	862346	2031441	981.5	112.0	4.0	116.6	11.2	96

Note: Complete laboratory test data is located in Appendix B

Table 1 (cont.)
Random Fill Embankment In-Place Density Testing Summary
Sherco Pond 3 South Construction

Test No.	Date	Northing	Easting	Elevation	In-Place Density (pcf)	In-Place Moisture (%)	Max Dry Density (pcf)	Optimum Moisture (%)	Percent Compaction
RF-100	11/20/09	862388	2031382	984	115.0	8.0	116.6	11.2	99
RF-101	11/20/09	862432	2031476	979	113.0	3.0	116.6	11.2	97
RF-102	11/20/09	862385	2031534	984	115.0	3.0	116.6	11.2	99
RF-103	11/20/09	862347	2031592	974	104.0	3.0	108.8	13.2	96
RF-104	11/23/09	862367	2031513	982	112.0	6.3	116.6	11.2	96
RF-105	11/23/09	862367	2031513	974	112.0	9.0	116.6	11.2	96
RF-106	11/23/09	862381	2031651	984	113.0	3.0	116.6	11.2	97
RF-107	11/23/09	862435	2031650	979	115.0	5.0	116.6	11.2	99
RF-108	11/23/09	862333	2031820	970	113.0	4.0	116.6	11.2	97
RF-109	11/24/09	862380	2031745	976.5	118.0	4.0	116.6	11.2	101
RF-110	11/24/09	862395	2031835	970	130.0	8.0	127.7	8.0	102
RF-111	11/24/09	862356	2031915	963	128.0	11.0	127.7	8.0	100
RF-112	4/12/10	863571	2031818	952.5	107.8	8.5	110.8	13.2	97
RF-113	4/12/10	863426	2031879	953.5	112.7	4.0	116.6	11.2	97
RF-114	4/12/10	863309	2031906	951	106.0	5.4	110.8	13.2	96
RF-115	4/12/10	863053	2031925	951.5	112.3	4.3	116.8	11.2	96
RF-116	4/12/10	862818	2031814	948.5	112.6	5.2	116.8	11.2	96
RF-117	4/13/10	862839	2031938	953.5	110.7	6.3	116.6	11.2	95
RF-118	4/13/10	862903	2031852	952	103.6	6.1	107.5	13.1	96
RF-119	4/13/10	862980	2031893	953	111.8	5.0	116.6	11.2	96
RF-120	4/13/10	863108	2031818	952.5	110.6	7.7	116.6	11.2	95
RF-121	4/13/10	863428	2031878	953.5	108.4	6.9	110.8	13.2	98
RF-122	4/13/10	863288	2031950	955.5	111.3	3.3	116.6	11.2	95
RF-123	4/14/10	862925	2031966	958	109.4	8.1	110.8	13.2	99
RF-124	4/14/10	862777	2031915	956.5	109.3	6.6	110.8	13.2	99
RF-125	4/14/10	862973	2031854	956	109.8	6.4	110.8	13.2	99
RF-126	4/14/10	863258	2031892	957.5	104.2	6.8	109.9	12.8	95
RF-127	4/15/10	862568	2031838	948	110.1	3.7	110.8	13.2	99
RF-128	4/15/10	862859	2031839	960.5	103.5	3.9	106.2	14.5	97
RF-129	4/15/10	863021	2031823	960	109.4	6.0	110.8	13.2	99
RF-130	4/15/10	863187	2031905	960	112.7	5.9	116.6	11.2	97
RF-131	4/15/10	863057	2032036	958	116.3	4.2	116.6	11.2	100
RF-132	4/15/10	862741	2031947	960	113.6	8.6	116.6	11.2	97
RF-133	4/19/10	862492	2031907	956.5	113.9	6.3	116.6	11.2	98
RF-134	4/19/10	862723	2031926	961	114.0	6.0	116.6	11.2	98
RF-135	4/19/10	862931	2031866	962	111.0	8.1	116.6	11.2	95
RF-136	4/19/10	863153	2031925	961.5	116.7	5.1	116.6	11.2	100
RF-137	4/19/10	863276	2031883	963	114.5	5.9	116.6	11.2	98
RF-138	4/19/10	863124	2031927	964	119.4	6.3	116.6	11.2	102
RF-139	4/19/10	862904	2031912	965	117.6	6.0	116.6	11.2	101
RF-140	4/20/10	862692	2031879	964	117.9	6.3	116.6	11.2	101
RF-141	4/20/10	862557	2031799	963	109.3	3.5	109.9	12.8	99
RF-142	4/20/10	862519	2031696	964	108.1	9.5	109.9	12.8	98
RF-143	4/20/10	862467	2031888	962.5	109.2	4.9	109.9	12.8	99
RF-144	4/21/10	862378	2031843	974.5	111.7	10.4	116.6	11.2	96
RF-145	4/21/10	862364	2031933	967	109.9	6.5	110.8	13.2	99
RF-146	4/21/10	862663	2031942	963	105.2	3.7	110.8	13.2	95
RF-147	4/21/10	862597	2031853	965	105.6	5.4	110.8	13.2	95
RF-148	4/21/10	862818	2032003	962	116.8	5.7	116.6	11.2	100
RF-149	4/21/10	863022	2032059	961	111.3	6.5	116.6	11.2	95

Note: Complete laboratory test data is located in Appendix B

Table 1 (cont.)
Random Fill Embankment In-Place Density Testing Summary
Sherco Pond 3 South Construction

Test No.	Date	Northing	Easting	Elevation	In-Place Density (pcf)	In-Place Moisture (%)	Max Dry Density (pcf)	Optimum Moisture (%)	Percent Compaction
RF-150	4/22/10	862582	2032060	963.5	113.1	6.1	116.6	11.2	97
RF-151	4/22/10	862499	2032008	964	113.0	6.4	116.6	11.2	97
RF-152	4/22/10	862633	2031949	968	107.3	5.3	109.9	12.8	98
RF-153	4/22/10	862708	2032005	968	105.2	4.6	109.9	12.8	96
RF-154	4/22/10	862789	2032058	964	121.7	7.6	127.7	8.0	95
RF-155	4/22/10	862707	2032096	963	114.8	7.4	116.6	11.2	98
RF-156	4/23/10	862977	2032067	962.5	112.3	3.9	116.6	11.2	96
RF-157	4/23/10	862794	2032039	966	117.2	2.6	116.6	11.2	101
RF-158	4/23/10	862568	2032028	968.5	116.8	4.2	116.6	11.2	100
RF-159	4/23/10	862419	2031968	969.5	111.5	4.3	116.6	11.2	96
RF-160	4/23/10	862576	2032093	959.5	124.1	4.7	127.7	8.0	97
RF-161	4/23/10	862787	2032111	960.5	122.3	6.0	127.7	8.0	96
RF-162	4/26/10	862819	2032121	963	129.8	8.7	127.7	8.0	102
RF-163	4/26/10	862650	2032099	964.5	122.7	5.3	127.7	8.0	96
RF-164	4/26/10	862486	2032066	964.5	114.4	3.3	116.6	11.2	98
RF-165	4/26/10	862344	2032051	963	116.6	5.3	116.6	11.2	100
RF-166	4/26/10	862410	2031955	971.5	102.3	12.2	107.5	13.9	95
RF-167	4/27/10	862473	2031957	976	118.0	2.9	116.6	11.2	101
RF-168	4/27/10	862579	2032009	972.5	125.6	3.2	127.7	8.0	98
RF-169	4/27/10	862735	2031987	973.5	110.6	6.5	116.6	11.2	95
RF-170	4/27/10	862731	2032088	968.5	114.0	9.7	116.6	11.2	98
RF-171	4/27/10	862448	2032059	972	112.6	6.5	116.6	11.2	97
RF-172	4/27/10	862386	2031958	974.5	119.0	4.8	116.6	11.2	102
RF-173	4/28/10	862768	2031991	978	108.1	5.1	110.8	13.2	98
RF-174	4/28/10	862515	2031963	979	113.1	3.3	116.6	11.2	97
RF-175	4/28/10	862435	2031754	979	124.9	6.7	127.7	8.0	98
RF-176	4/28/10	862422	2031833	981.5	119.6	4.0	116.6	11.2	103
RF-177	4/28/10	862615	2032103	973	110.1	4.1	110.8	13.2	99
RF-178	4/28/10	862931	2032009	975.5	113.8	7.2	116.6	11.2	98
RF-179	4/28/10	863057	2032026	972.5	112.4	3.5	116.6	11.2	96
RF-180	4/28/10	862640	2032032	982	115.6	3.5	116.6	11.2	99
RF-181	4/28/10	862817	2032049	981.5	120.4	3.4	116.6	11.2	103
RF-182	4/29/10	863028	2032006	979	107.2	5.9	110.8	13.2	97
RF-183	4/29/10	862919	2032030	984	114.0	4.0	116.6	11.2	98
RF-184	4/29/10	862445	2032015	982	118.2	4.5	116.6	11.2	101
RF-185	4/29/10	862641	2032070	975.5	117.3	11.8	116.6	11.2	101
RF-186	4/29/10	862855	2032125	966.5	115.9	7.0	116.6	11.2	99
RF-187	4/29/10	862691	2032031	984	122.2	4.5	127.7	8.0	96
RF-188	4/29/10	862912	2032049	984	119.1	4.0	116.6	11.2	102
RF-189	5/3/10	862767	2032065	984	115.3	2.5	116.6	11.2	99
RF-190	5/19/10	862449	2031967	984	122.2	5.2	127.7	11.2	96
RF-191	6/8/10	863393	2031940	966	119.0	4.0	116.6	11.2	102
RF-192	6/8/10	863276	2032033	963	115.7	3.0	116.6	11.2	99
RF-193	6/8/10	863208	2032096	962	116.5	7.0	116.6	11.2	100
RF-194	6/8/10	863305	2031969	965	109.5	3.0	110.8	13.2	99
RF-195	6/8/10	863208	2032096	964	117.0	7.0	116.6	11.2	100
RF-196	6/9/10	863326	2031949	966.5	114.5	5.1	116.6	11.2	98
RF-197	6/9/10	863412	2031916	961.5	109.0	3.5	110.8	13.2	98
RF-198	6/9/10	863359	2032031	969	115.0	3.5	116.6	11.2	99
RF-199	6/9/10	863409	2031878	965.5	116.6	3.0	116.6	11.2	100

Note: Complete laboratory test data is located in Appendix B

Table 1 (cont.)
Random Fill Embankment In-Place Density Testing Summary
Sherco Pond 3 South Construction

Test No.	Date	Northing	Easting	Elevation	In-Place Density (pcf)	In-Place Moisture (%)	Max Dry Density (pcf)	Optimum Moisture (%)	Percent Compaction
RF-200	6/14/10	863199	2032029	972	119.1	3.1	116.6	11.2	102
RF-201	6/14/10	863354	2031990	970	109.8	5.7	110.8	13.2	99
RF-202	6/14/10	863564	2031870	959	110.3	14.8	110.3	13.2	100
RF-203	6/14/10	863480	2031848	959	108.2	9.4	110.8	13.2	98
RF-204	6/14/10	863557	2031854	965	113.8	3.9	116.6	11.2	98
RF-205	6/14/10	863471	2031857	965	108.6	3.4	110.8	13.2	98
RF-206	6/15/10	863423	2031992	975.5	108.8	4.9	110.8	13.2	98
RF-207	6/15/10	863316	2032036	974.5	114.5	4.3	116.6	11.2	98
RF-208	6/15/10	863138	2031993	977	106.4	4.0	110.8	13.2	96
RF-209	6/15/10	863202	2032102	975	109.1	3.7	110.8	13.2	98
RF-210	6/16/10	863439	2032025	984	109.5	3.4	110.8	13.2	99
RF-211	6/16/10	863261	2032068	981.5	106.5	4.1	110.8	13.2	96
RF-212	6/16/10	863197	2032056	979	108.2	4.4	110.8	13.2	98
RF-213	6/17/10	863505	2032027	987	113.7	3.5	116.6	11.2	98
RF-214	6/17/10	863302	2032064	984	113.7	4.1	116.6	11.2	98
RF-215	8/6/10	862941	2032059	986	106.6	3.0	108.8	13.2	98
RF-216	8/6/10	862399	2031630	985	114.2	4.0	116.6	8.0	98
RF-217	8/6/10	862367	2031113	986.5	108.8	4.0	108.8	13.2	100
RF-218	10/27/10	863399	2031960	984	113.5	4.8	116.6	11.2	97
RF-219	10/27/10	863464	2031941	981	116.6	3.2	116.6	11.2	100
RF-220	10/27/10	863654	2031908	979.5	124.8	4.7	127.7	8	98
RF-221	10/27/10	863358	2031928	981.5	119.3	3.8	116.6	11.2	102

Note: Complete laboratory test data is located in Appendix B

Table 2
Clay Prequalification Testing Summary
Sherco Pond 3 South Construction

Sample No.	Soil Classification	Maximum Dry Density (pcf)	Optimum Moisture Content (%)	Atterberg Limits			% Passing No. 200 [2]	Field Moisture Content (%)	Permeability[1] (cm/sec)
				Liquid Limit	Plastic Limit	Plasticity Index			
CLS-1	CL/SC	116.7	13.8	31.8	14.6	17.2	50.9	16.2	4.7×10^{-8}
CLS-2	SC/CL	116.3	14.2	33.7	15.1	18.6	49.1	18.2	6.8×10^{-8}
MPCA Guidelines	CL, CH, SC	NA	NA	$\geq$ 25	$\geq$ 13	$\geq$ 12	$\geq$ 50	NA	$\leq 1.0 \times 10^{-7}$

Notes:

[1] Permeability Tested at 97% compaction and optimum moisture content

[2] Soils with less than min. P_{200} have been used successfully when permeability guideline is met

Complete laboratory test data is located in Appendix C

Table 3
Clay In-Place Density Testing Summary
Sherco Pond 3 South Construction

Test No.	Date	Northing	Easting	Elevation	In-Place Density (pcf)	In-Place Moisture (%)	Max Dry Density (pcf)	Optimum Moisture (%)	Percent Compaction
CL-1	5/17/10	862415	2030753	994.5	116.0	13.0	114.6	13.9	101
CL-2	5/17/10	862424	2031421	979.0	116.4	14.2	114.6	13.9	102
CL-1A	5/17/10	Retest of CL-1		994.5	115.0	14.0	114.6	13.9	100
CL-3	5/17/10	862409	2030848	987.5	113.1	14.8	114.6	13.9	99
CL-4	5/17/10	862421	230693	1000.5	116.4	13.9	114.6	13.9	102
CL-5	5/17/10	862416	2030663	1003.5	114.5	13.9	114.6	13.9	100
CL-6	5/17/10	862408	2030774	995.5	113.2	14.3	114.6	13.9	99
CL-7	5/17/10	862409	2030739	999.0	108.1	14.6	114.6	13.9	94
CL-7A	5/17/10	Retest of CL-7		999.0	113.2	14.8	114.6	13.9	99
CL-8	5/17/10	862400	2030964	980.5	113.2	15.3	114.6	13.9	99
CL-9	5/17/10	862404	2031031	981.0	114.3	14.9	114.6	13.9	100
CL-10	5/17/10	862378	2031013	984.0	113.8	15.8	114.6	13.9	99
CL-11	5/17/10	862405	2031123	982.0	113.6	15.7	114.6	13.9	99
CL-12	5/17/10	862394	2030937	984.0	112.0	14.9	114.6	13.9	98
CL-12A	5/17/10	Retest of CL-12		984.0	114.1	14.2	114.6	13.9	100
CL-13	5/17/10	862412	2031229	980.0	115.4	14.2	114.6	13.9	101
CL-14	5/17/10	862409	2031213	982.0	111.1	14.6	114.6	13.9	97
CL-14A	5/176	Retest of CL-14		982.0	113.4	15.3	114.6	13.9	99
CL-15	5/18/10	862412	2031338	984.0	113.0	15.0	114.6	13.9	99
CL-16	5/18/10	862432	2031563	980.0	114.5	14.5	114.6	13.9	100
CL-17	5/18/10	862429	2031536	981.0	116.7	14.5	114.6	13.9	102
CL-18	5/18/10	8624525	2031509	982.5	115.7	14.8	114.6	13.9	101
CL-19	5/18/10	862428	2031598	983.5	106.2	15.7	114.6	13.9	93
CL-19A	5/18/10	Retest of CL-19		983.5	114.8	14.7	114.6	13.9	100
CL-20	5/18/10	862437	2031749	982.0	112.5	14.7	114.6	13.9	98
CL-20A	5/18/10	Retest of CL-20		982.0	114.3	14.7	114.6	13.9	100
CL-21	5/18/10	862443	2031880	983.5	115.1	14.1	114.6	13.9	100
CL-22	5/18/10	862459	2031917	981.0	116.9	14.0	114.6	13.9	102
CL-23	5/18/10	862432	2031719	984.0	115.6	15.4	114.6	13.9	101
CL-24	5/18/10	862420	2031555	984.0	113.4	14.0	114.6	13.9	99
CL-25	5/18/10	862454	2031911	982.0	116.2	14.4	114.6	13.9	101
CL-26	5/19/10	862417	2030585	1005.5	103.9	14.7	114.6	13.9	91
CL-26A	5/19/10	Retest of CL-26		1005.5	113.1	14.0	114.6	13.9	99
CL-27	5/19/10	862419	2030593	1006.0	113.8	14.5	114.6	13.9	99
CL-28	5/19/10	862418	2030579	1008.0	114.0	10.8	114.6	13.9	99
CL-28A	5/19/10	Retest of CL-28		1008.0	118.8	14.0	114.6	13.9	104
CL-29	5/20/10	862939	2032003	979.5	102.3	15.8	114.6	13.9	89
CL-29A	5/20/10	Retest of CL-29		979.5	113.8	15.3	114.6	13.9	99
CL-30	5/20/10	862775	2032004	979.5	113.3	14.1	114.6	13.9	99
CL-31	5/20/10	862742	2032005	981.0	113.9	13.7	114.6	13.9	99
CL-32	5/20/10	862607	2032006	981.0	118.3	13.9	114.6	13.9	99
CL-33	5/20/10	862599	2032008	982.0	117.0	15.6	114.6	13.9	103
CL-34	5/20/10	862729	2032008	983.0	119.0	14.7	114.6	13.9	104
CL-35	5/20/10	862829	2032010	983.5	115.8	15.2	114.6	13.9	101
CL-36	5/20/10	862628	2032011	984.0	113.5	14.3	114.6	13.9	99
CL-37	5/20/10	862492	2031956	982.0	113.2	15.1	114.6	13.9	99

Note: Complete laboratory test data is located in Appendix C

Table 3 (cont.)
Clay In-Place Density Testing Summary
Sherco Pond 3 South Construction

Test No.	Date	Northing	Easting	Elevation	In-Place Density (pcf)	In-Place Moisture (%)	Max Dry Density (pcf)	Optimum Moisture (%)	Percent Compaction
CL-38	6/2/10	862407	2031211	983.0	114.7	14.5	114.6	13.9	100
CL-39	6/21/10	863546	2031993	986.0	114.9	16.9	114.6	13.9	100
CL-40	6/21/10	863404	2032003	980.0	113.6	17.4	114.6	13.9	99
CL-41	6/21/10	863356	2032003	980.5	113.1	15.0	114.6	13.9	99
CL-42	6/21/10	863298	2032006	981.5	113.8	15.2	114.6	13.9	99
CL-43	6/21/10	863486	2032019	985.0	117.3	14.2	114.6	13.9	102
CL-44	6/21/10	863612	2031999	993.5	116.6	15.6	114.6	13.9	102
CL-45	6/21/10	863433	2032009	984.0	113.2	16.3	114.6	13.9	99
CL-46	6/21/10	863183	2032007	982.5	114.6	14.2	114.6	13.9	100
CL-47	6/21/10	863095	2032012	984.0	114.0	14.8	114.6	13.9	99
CL-48	6/21/10	863026	2032009	984.0	114.3	13.2	114.6	13.9	100
CL-49	7/15/10	862413	2031382	984.0	112.9	15.3	114.6	13.9	99
CL-50	7/15/10	862437	2031823	983.5	113.1	14.1	114.6	13.9	99
CL-51	7/15/10	862699	2032014	982.5	115.6	15.0	114.6	13.9	101
CL-52	7/16/10	862767	2032014	983.5	114.8	15.7	114.6	13.9	100

Note: Complete laboratory test data is located in Appendix C

Table 4
Clay In-Place Index Properties and Permeability Testing Summary
Sherco Pond 3 South Construction

Sample No. [1]		Soil Classification	In-place Dry Density (pcf)	In-place Moisture Content (%)	Atterberg Limits			% Passing No. 200 [2]	In-place Permeability (cm/sec)
					Liquid Limit	Plastic Limit	Plasticity Index		
Thinwall:	TW-1	CL	112.7	15.5	-----	-----	-----	-----	1.8×10^{-8}
Bulk:	Clay #1	CL	-----	16.4	32.5	15.9	16.6	52.3	-----
Thinwall:	TW-2	CL	116	15.6	-----	-----	-----	-----	5.5×10^{-9}
Bulk:	Clay #2	SC/CL	-----	15.6	30.8	15.0	15.8	48.7	-----
Thinwall:	TW-3	CL	107.7	17.5	-----	-----	-----	-----	1.9×10^{-8}
Bulk:	Clay #3	CL/SC	-----	15.9	33.4	15.2	18.2	51.8	-----
Thinwall:	TW-4	CL/SC	111.5	16.7	-----	-----	-----	-----	1.0×10^{-7}
Bulk:	Clay #4	CL/SC	-----	16.0	32.2	15.0	17.2	51.2	-----
MPCA Guidelines		CL, CH, SC	NA	NA	$\geq$ 25	$\geq$ 13	$\geq$ 12	$\geq$ 50	$\leq 1.0 \times 10^{-7}$
Average									3.6×10^{-8}

Notes:

[1] At each sample location, a bulk sample and thinwall sample was collected

[2] Soils with less than min. P_{200} have been used successfully when permeability guideline is met

Complete laboratory test data is located in Appendix C

Table 5
Granular Drainage Material Particle Size and Permeability Testing Summary
Sherco Pond 3 South Construction

Sample No.	Date Sampled	Location			% Passing		Uniformity Coefficient	Dry Density (pcf)	Permeability (cm/s)
		Northing	Easting	Elevation	3/8 inch	No. 200			
GDM-1	5/26/2010	863,661	2,031,471	956.00	100	3.7	3.0	107.7	$3.4x10^{-2}$
GDM-2	5/26/2010	863,761	2,030,941	987.00	100	3.2	3.1	109.7	$3.7x10^{-2}$
GDM-3	5/26/2010	863,535	2,030,723	968.00	100	3.8	2.9	110.2	$2.6x10^{-2}$
GDM-4	7/27/2010	863,529	2,031,624	943.00	100	4.5	2.9	110.2	$2.1x10^{-2}$
GDM-5	7/27/2010	863,547	2,031,051	944.45	100	4.5	3.2	109.9	$2.6x10^{-2}$
GDM-6	7/27/2010	863,247	2,030,993	943.00	100	2.9	3.1	110.7	$1.9x10^{-2}$
GDM-7	7/27/2010	863,255	2,031,502	945.50	100	4.0	3.2	109.6	$2.9x10^{-2}$
GDM-8	7/27/2010	863,057	2,031,118	945.50	100	4.3	3.3	109.3	$2.4x10^{-2}$
GDM-9	8/5/2010	862,986	2,031,626	942.50	100	2.9	3.0	108.7	$2.6x10^{-2}$
GDM-10	8/5/2010	862,935	2,031,325	948.50	100	4.1	3.2	109.0	$2.2x10^{-2}$
GDM-11	8/5/2010	863,016	2,030,958	942.50	100	4.2	3.2	109.5	$2.0x10^{-2}$
GDM-12	8/5/2010	862,691	2,031,046	944.00	100	4.6	2.8	110.2	$2.1x10^{-2}$
GDM-13	8/5/2010	862,705	2,031,541	944.49	100	4.2	3.3	110.2	$1.7x10^{-2}$
GDM-14	8/5/2010	863,299	2,031,921	968.50	100	4.0	3.4	111.0	$1.6x10^{-2}$
GDM-15	8/5/2010	862,840	2,031,975	975.50	100	3.2	3.3	111.5	$1.8x10^{-2}$
GDM-16	8/5/2010	862,457	2,031,826	981.50	100	3.4	3.5	109.5	$2.7x10^{-2}$
GDM-17	8/5/2010	862,456	2,031,826	981.50	100	4.0	3.1	109.9	$2.4x10^{-2}$
GDM-18	8/5/2010	862,427	2,030,906	980.00	100	3.1	3.2	109.6	$2.1x10^{-2}$
GDM-19	8/5/2010	862,464	2,030,610	1,012.00	100	3.7	3.3	108.9	$1.8x10^{-2}$
GDM-20	8/5/2010	862,629	2,030,704	982.50	100	3.6	2.8	109.8	$2.3x10^{-2}$
MPCA Guidelines		NA	NA	NA	100	≤ 5	≤ 6	NA	$\geq 1.0 \times 10^{-3}$
Average									$2.3x10^{-2}$

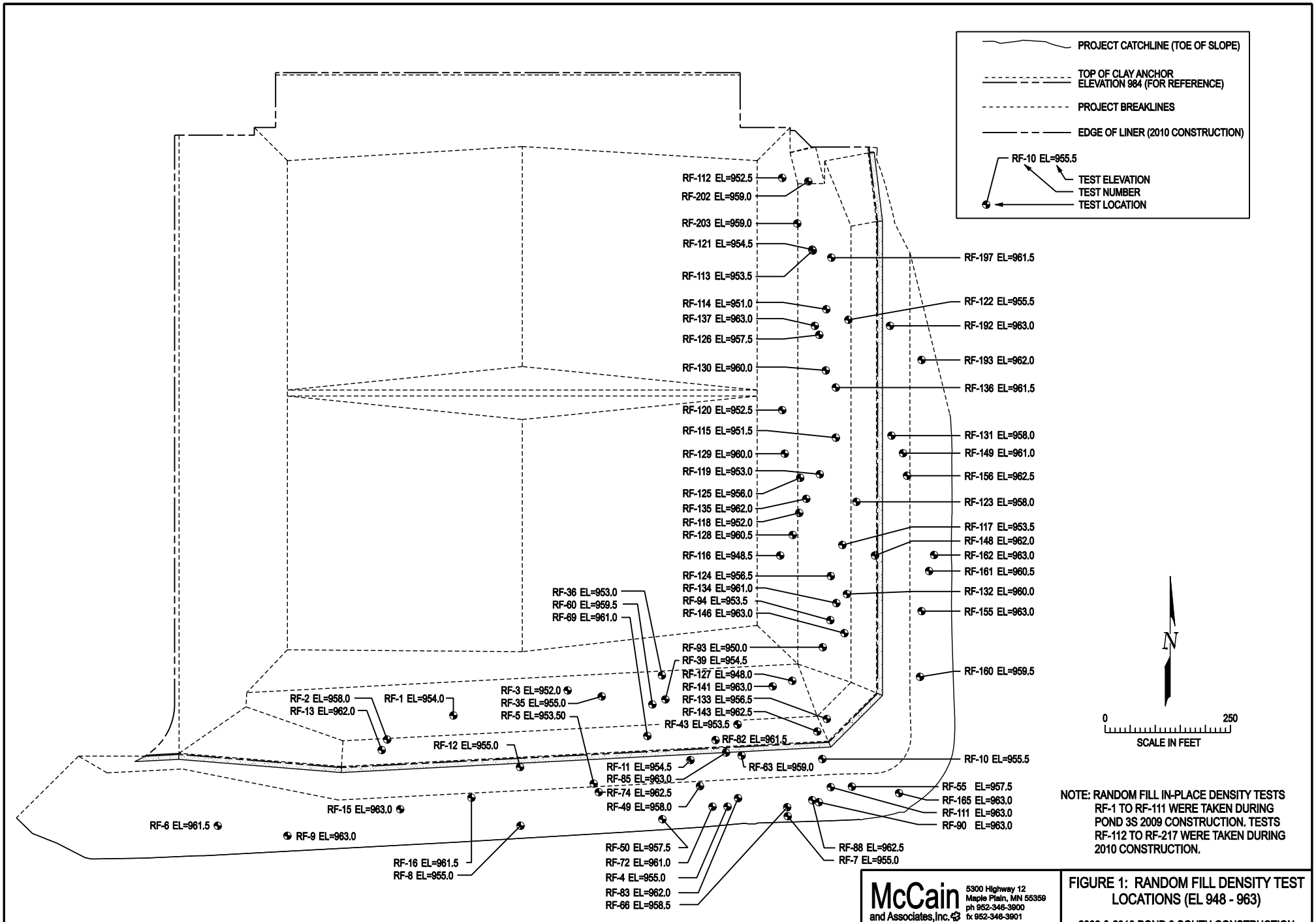
Note: Complete laboratory test data is located in Appendix D

Table 6
Bottom Ash In-Place Density Testing Summary
Sherco Pond 3 South Construction

Test No.	Date	Northing	Easting	Elevation	In-Place Density (pcf)	In-Place Moisture (%)	Max Dry Density (pcf)	Optimum Moisture (%)	Percent Compaction
BA-1	9/21/10	862529	2031112	973	98.1	2.6	98.3	23.0	100
BA-2	9/21/10	862511	2030858	976	89.6	4.5	89.7	27.5	100
BA-3	9/21/10	862505	2031267	974	103.2	3.0	98.3	23.0	105
BA-4	9/23/10	862519	2031502	974	89.9	9.0	87.8	29.8	102
BA-5	9/23/10	862486	2031687	975.5	82.5	13.0	82.4	31.2	100
BA-6	9/23/10	862570	2031343	972	86.1	8.6	87.8	29.8	98
BA-7	9/28/10	862460	2030916	976.5	101.0	2.4	98.3	23.0	103
BA-8	9/28/10	862580	2031765	973	91.4	4.4	89.7	27.5	102
BA-9	9/30/10	862554	2031653	975.5	93.4	17.2	89.7	27.5	104
BA-10	9/30/10	862565	2031524	975	78.0	14.9	82.4	31.2	95
BA-11	9/30/10	862489	2031419	976.5	78.0	6.0	82.4	31.2	95
BA-12	9/30/10	862547	2031249	974.5	102.1	8.6	98.0	23.0	104
BA-13	10/5/10	862686	2031939	974.5	91.5	11.1	89.7	27.5	102
BA-14	10/5/10	862867	2031940	974.5	93.1	11.3	89.7	27.5	104
BA-15	10/5/10	862958	2031867	976	93.5	8.1	89.7	27.5	104
BA-16	10/5/10	862792	2031962	977	88.5	6.9	87.8	29.8	101
BA-17	10/7/10	863104	2031882	980.5	90.1	8.1	89.7	27.5	100
BA-18	10/7/10	862802	2031890	976.5	91.2	5.1	89.7	27.5	102
BA-19	10/7/10	863033	2031974	982	78.2	13.6	82.4	31.2	95
BA-20	10/7/10	862501	2030949	978.5	96.3	2.4	98.3	23.0	98
BA-21	10/12/10	863252	2031896	980	111.3	3.1	109.9	17.8	101
BA-22	10/12/10	863328	2031951	977.5	99.7	8.6	98.3	23.0	101
BA-23	10/12/10	862523	2031756	979.5	102.1	4.8	98.3	23.0	104
BA-24	10/12/10	862490	2031555	980	86.7	24.6	87.8	29.8	99
BA-25	10/12/10	862549	2031304	976.5	90.7	9.3	89.7	27.5	101
BA-26	10/19/10	862492	2031534	982.5	84.3	20.8	82.4	31.2	102
BA-27	10/19/10	862453	2031417	983.5	81.5	27.1	82.4	31.2	99
BA-28	10/19/10	862423	2031246	984	98.2	4.1	98.3	23.0	100
BA-29	10/19/10	862433	2031142	982	89.1	7.6	89.7	27.5	99
BA-30	10/19/10	862443	2031252	983.5	80.6	33.3	82.4	31.2	98
BA-30A	10/21/10	Retest of BA-30			84.0	27.7	82.4	31.2	102
BA-31	10/19/10	862482	2031610	981	81.2	13.6	82.4	31.2	99
BA-32	10/19/10	862480	2031818	983.5	95.8	19.8	98.3	23.0	97
BA-33	10/19/10	862886	2031909	977.5	93.2	3.3	89.7	27.5	104
BA-34	10/19/10	863554	2031885	976.5	93.2	14.8	89.7	27.5	104
BA-35	10/21/10	863662	2031891	976.5	85.2	18.1	87.8	29.8	97
BA-36	10/21/10	863572	2031927	977	93.5	10.4	89.7	27.5	104
BA-37	10/21/10	863527	2031914	975	94.0	14.6	98.3	23.0	96
BA-38	10/21/10	863372	2031927	975.5	105.6	2.3	109.9	17.8	96
BA-39	10/21/10	863410	2031867	976	97.5	6.2	98.3	23.0	99
BA-40	10/25/10	862481	2031064	983	88	17	89	27.5	98
BA-41	10/25/10	862444	2030981	984	99	98	98	23.0	101
BA-42	10/25/10	862477	2030891	982.5	85.5	17.4	82.4	31.2	104
BA-43	10/25/10	862501	2030759	982	83.0	17.2	82.4	31.2	101
BA-44	10/25/10	862533	2031198	982	89.9	14.2	89.7	27.5	100
BA-45	10/25/10	862529	2031929	983.5	98.7	6.5	98.3	23.0	100
BA-46	10/25/10	862715	2031968	983.5	84.0	19.5	82.4	31.2	102
BA-47	10/25/10	862807	2031918	982.5	98.9	6.3	98.3	23.0	101

Note: Complete laboratory test data is located in Appendix F

Figures



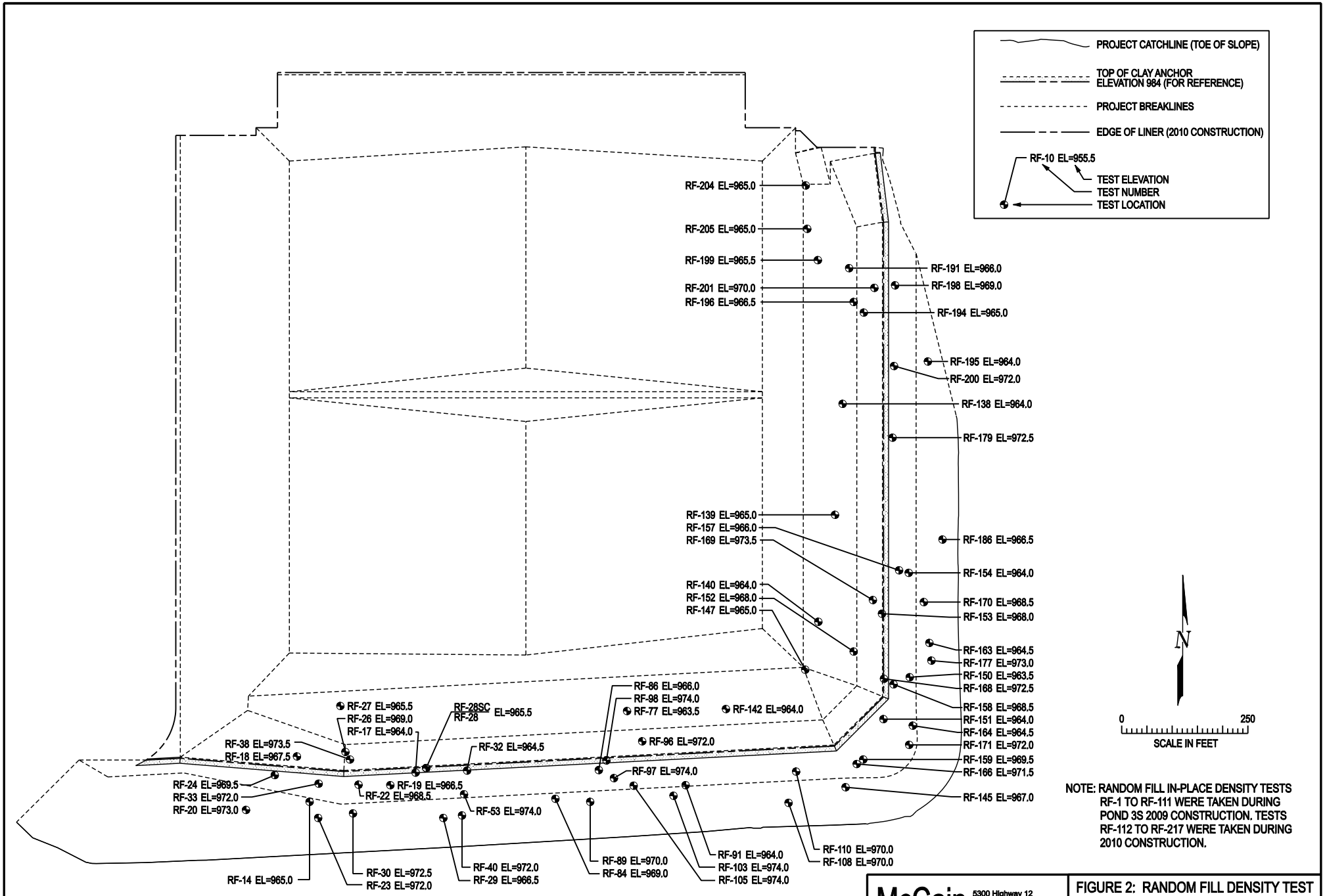
NOTE: RANDOM FILL IN-PLACE DENSITY TESTS RF-1 TO RF-111 WERE TAKEN DURING POND 3S 2009 CONSTRUCTION. TESTS RF-112 TO RF-217 WERE TAKEN DURING 2010 CONSTRUCTION.

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fx 952-346-3901

FIGURE 1: RANDOM FILL DENSITY TEST LOCATIONS (EL 948 - 963)

2009 & 2010 POND 3 SOUTH CONSTRUCTION

File: Default, , P:\Projects\XCEL\SHC0601 Pond 3S General Services\2010 construction\Cert Report\Final\Figures\Figure 1 - RF testing locations (EL 948 - 963).dgn



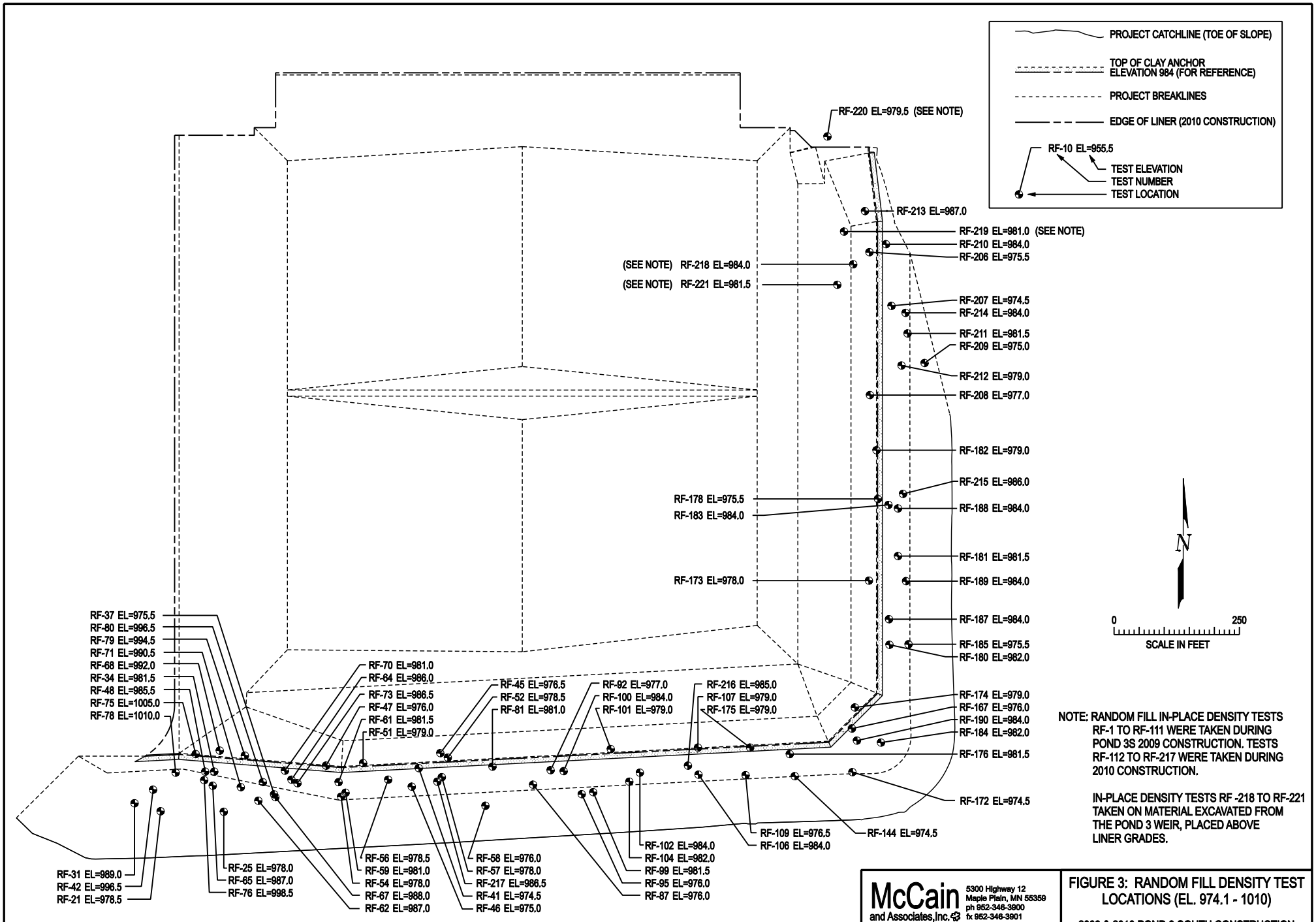
NOTE: RANDOM FILL IN-PLACE DENSITY TESTS RF-1 TO RF-111 WERE TAKEN DURING POND 3S 2009 CONSTRUCTION. TESTS RF-112 TO RF-217 WERE TAKEN DURING 2010 CONSTRUCTION.

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FIGURE 2: RANDOM FILL DENSITY TEST LOCATIONS (EL. 963.1 - 974)

2009 & 2010 POND 3 SOUTH CONSTRUCTION

File: Default, , P:\Projects\XCEL\SHC0601 Pond 3S General Services\2010 construction\Cert Report\Final\Figures\Figure 2 - RF testing locations (EL 963.1 - 974).dgn



NOTE: RANDOM FILL IN-PLACE DENSITY TESTS RF-1 TO RF-111 WERE TAKEN DURING POND 3S 2009 CONSTRUCTION. TESTS RF-112 TO RF-217 WERE TAKEN DURING 2010 CONSTRUCTION.

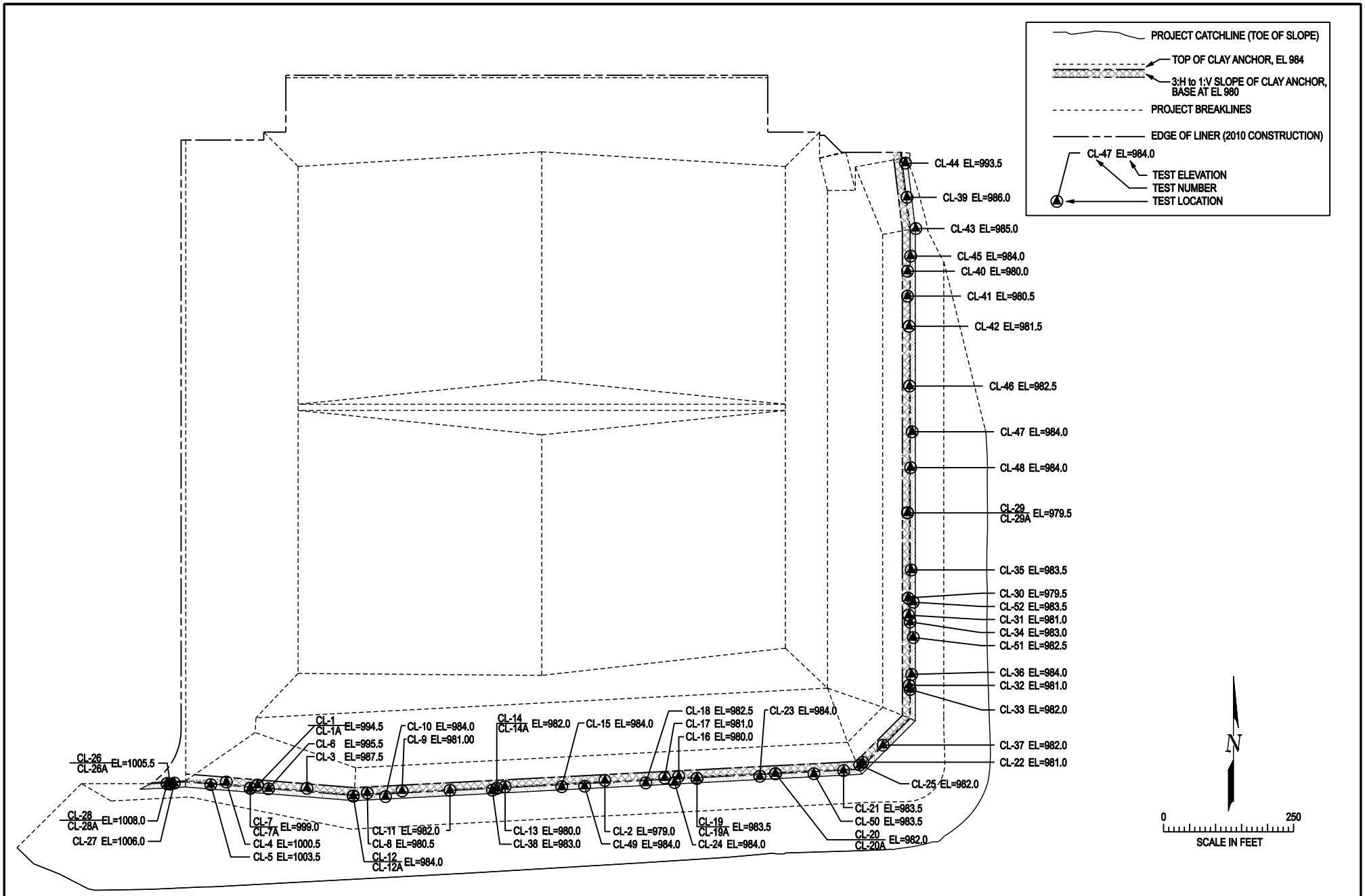
IN-PLACE DENSITY TESTS RF -218 TO RF-221 TAKEN ON MATERIAL EXCAVATED FROM THE POND 3 WEIR, PLACED ABOVE LINER GRADES.

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FIGURE 3: RANDOM FILL DENSITY TEST LOCATIONS (EL. 974.1 - 1010)

2009 & 2010 POND 3 SOUTH CONSTRUCTION

File: Default, , P:\Projects\XCEL\SHC0601 Pond 3S General Services\2010 construction\Cert Report\Final\Figures\Figure 3 - RF testing locations (EL 974.1 - 1010).dgn

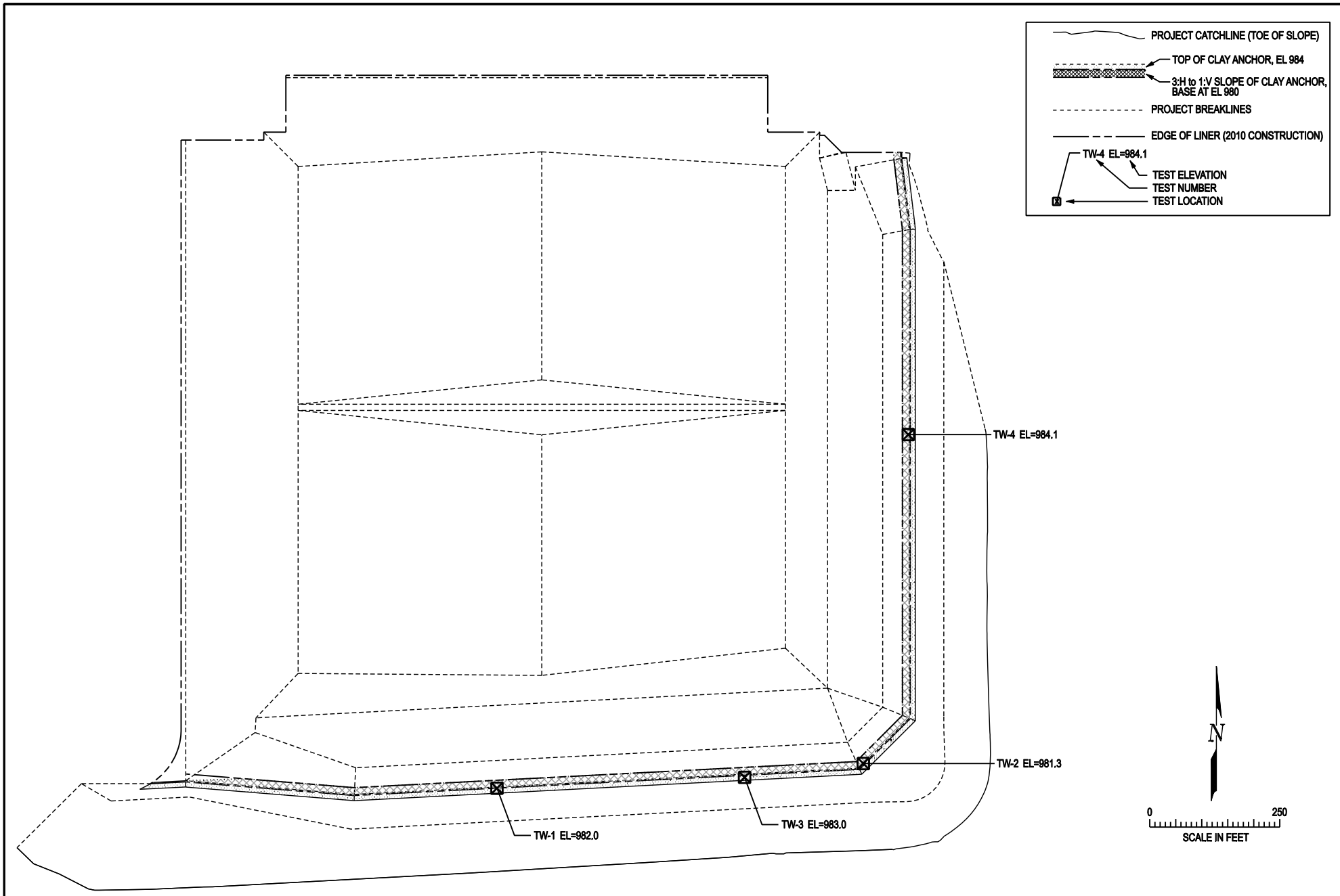


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FIGURE 4: CLAY IN-PLACE DENSITY TESTS

2010 POND 3 SOUTH CONSTRUCTION

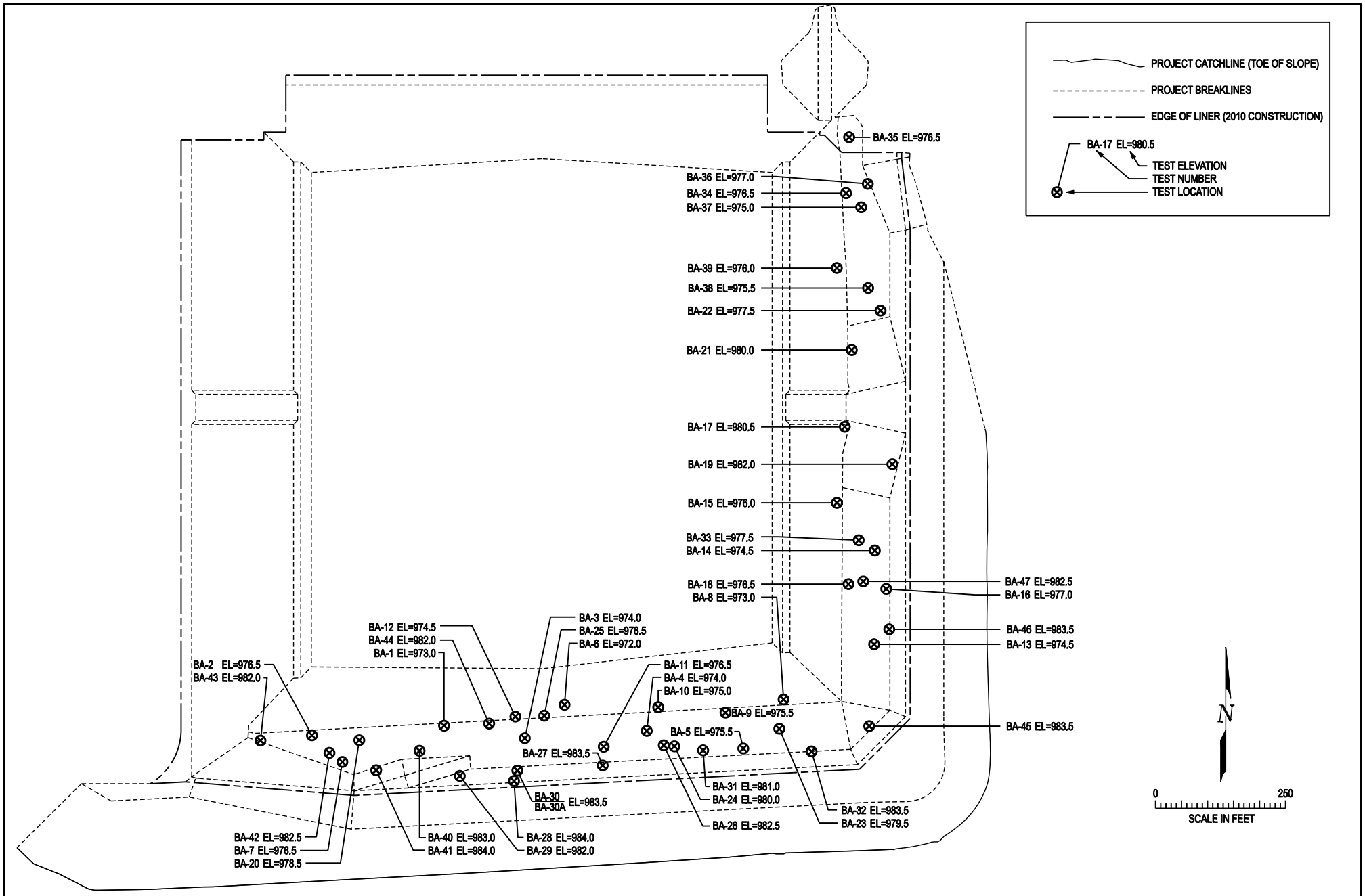


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FIGURE 5: CLAY INDEX PROPERTIES AND PERMEABILITY TEST LOCATIONS

2010 POND 3 SOUTH CONSTRUCTION

File: Default , P:\Projects\XCEL\SHC0601 Pond 3S General Services\2010 construction\Cert Report\Final\Figures\Figure 5 - Clay Index properties and permeability test locations.dgn



File: Default , P:\Projects\XCEL\SHC0601 Pond 3S General Services\2010 construction\Cert Report\Final\Figures\Figure 6 - Bottom Ash testing locations.dgn

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FIGURE 6: BOTTOM ASH IN-PLACE DENSITY TESTS

2010 POND 3 SOUTH CONSTRUCTION

Construction Photographs

Pond 3S 2009 and 2010 Construction Photographs



Photo 1 10/14/09	Right: Dozer stripping topsoil down the Pond 2 east slope into windrows. Left: Scraper collecting windrows, pushed by dozer. Looking south.



Photo 2 10/22/09	Scraper excavating the southeast corner of the pond base. Dozer grading the 3H to 1V slope of the south embankment.

Pond 3S 2009 and 2010 Construction Photographs



Photo 3 10/26/09	Foreground: Water wagon watering random fill in the south embankment, prior to being compacted by smooth drum vibratory roller. Road grader removing rocks larger than 12 inches in diameter from the embankment. Looking southeast.



Photo 4 11/09/09	Excavator excavating the pond base along the east side. Excavated material is placed in dump trucks and hauled to the east side of the south embankment (Background). Looking south.

Pond 3S 2009 and 2010 Construction Photographs



Photo 5 11/9/09	Foreground: Lifts containing high amounts of fine particles scarified during embankment construction. Background: Scrapers and smooth drum roller constructing the west portion of the south embankment. Looking west.



Photo 6 11/18/09	Dewatering trench running east-west through the center of the pond base. Right: water wagon watering subgrade prior to being rolled by smooth drum roller. Looking east.

Pond 3S 2009 and 2010 Construction Photographs



Photo 7 11/20/09	Left: Scraper excavating random fill from borrow area, pushed by dozer. Right: Excavator stripping and placing topsoil in dump trucks, to be hauled to the topsoil stockpile far right. Looking north.



Photo 8 4/12/10	Foreground: Random fill excavation in the borrow area. Background: Scrapers assisted by push dozer excavating random fill. Looking south.

Pond 3S 2009 and 2010 Construction Photographs



Photo 9 4/22/10	Scrapers and off-roaders placing random fill in the east embankment. Dozer spreading placed material in 12 inch loose lifts, which are then watered and rolled with a vibratory smooth drum roller.



Photo 10 11/13/09	Foreground: Road grader using blade to shape the 1.5H to 1V backside slope of the clay anchor along the south embankment. Background: Laborer utilizing GPS rover placing grade stakes.

Pond 3S 2009 and 2010 Construction Photographs



Photo 11 5/10/10	Excavator shaping the 1.5H to 1V backside slope of the clay anchor along the east embankment.



Photo 12 5/4/10	Foreground: Excavator and laborers exposing existing Pond 3N composite liner. Left: Dozer utilizing GPS, fine grading the north slope prior to liner deployment.

Pond 3S 2009 and 2010 Construction Photographs



Photo 13 5/6/10	Skid steer deploying Geosynthetic clay liner (GCL) on the north slope, looking northeast.



Photo 14 5/12/10	Skid steer positioned on top of the north slope, deploying white 60 mil HDPE geomembrane.

Pond 3S 2009 and 2010 Construction Photographs



Photo 15 5/6/10	Foreground: Laborers placing accessory granular bentonite on the exposed existing Pond 3N GCL. Left: Pond 3S GCL and geomembrane on north slope. Looking west.



Photo 16 5/12/10	Foreground: Dual-wedge welder connecting the Pond 3N geomembrane (black) to the Pond 3S geomembrane (white). Composite liner order from bottom to top along connection: Pond 3N GCL, Pond 3S GCL, Pond 3S geomembrane, and Pond 3N geomembrane. Left: Skid steer deploying GCL on the north slope. Looking west.

Pond 3S 2009 and 2010 Construction Photographs



Photo 17 5/6/10	Dual-wedge welder seaming 60 mil textured geomembrane, Technician in front of welder cleaning underside of geomembrane. Far right: CQA personnel overseeing air test. Looking southwest.



Photo 18 5/10/10	Technician using grinder to remove dirt and oxidation on the geomembrane prior to extrusion weld.

Pond 3S 2009 and 2010 Construction Photographs



Photo 19 5/6/10	Technician welding geomembrane patch with extrusion welder.

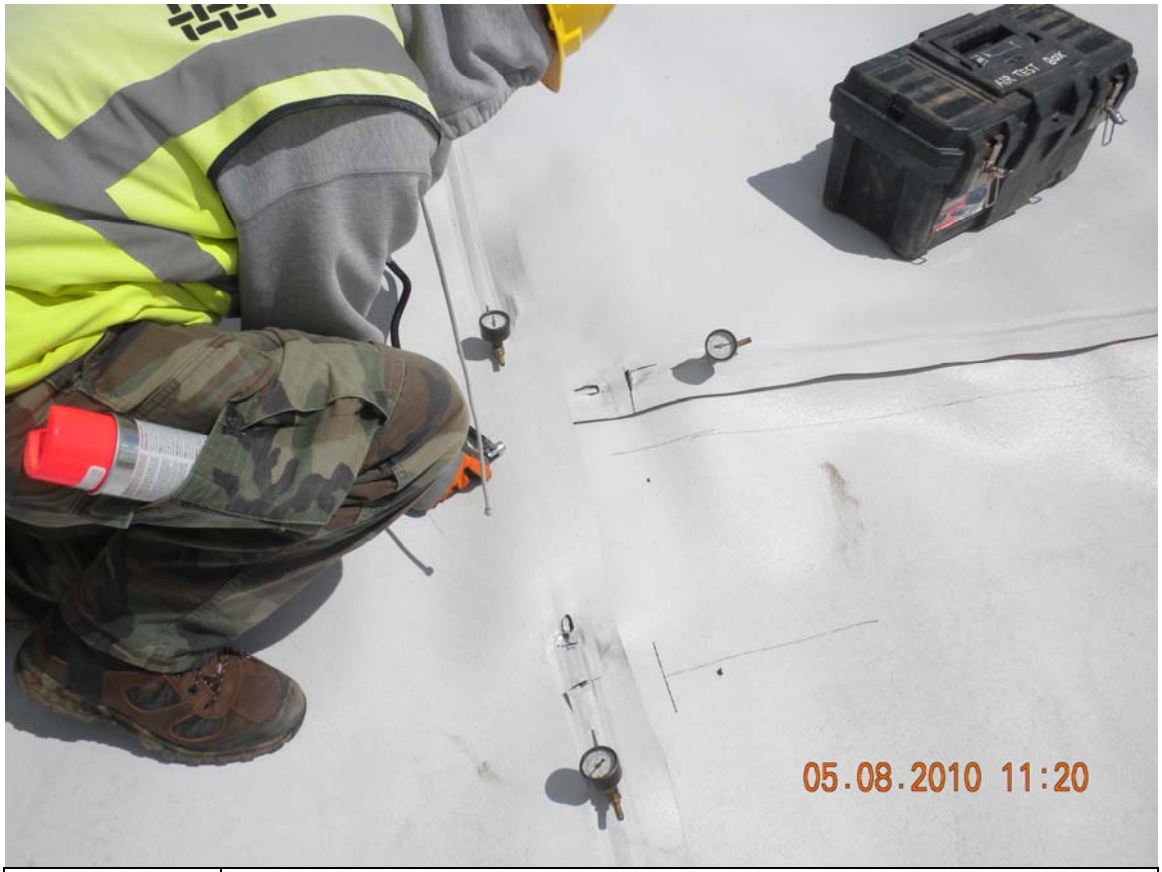


Photo 20 5/8/10	Liner QC personnel performing non-destructive air tests on dual-wedge welded seams.

Pond 3S 2009 and 2010 Construction Photographs



Photo 21 5/25/10	Liner QC personnel performing vacuum box test on extrusion welded seam.



Photo 22 5/13/10	Dozers placing GDM on the north slope, assisted by laborers hand placing GDM on the liner to prevent wrinkle propagation, looking west.

Pond 3S 2009 and 2010 Construction Photographs



Photo 23 5/24/10	Foreground: Liner personnel seaming and testing geomembrane deployed on the west slope. Background: Off-roader and dozers placing GDM on the north slope.



Photo 24 5/26/10	Composite liner boot around Pond 2 dewatering well, looking south.

Pond 3S 2009 and 2010 Construction Photographs



Photo 25 5/21/10	Foreground: Skid steer fine grading dewatering trench. Background: Skid steer deploying GCL. Far background: Excavator excavating anchor trench on top of the west slope.



Photo 26 5/24/10	Composite liner deployed in dewatering trench, looking northeast.

Pond 3S 2009 and 2010 Construction Photographs



Photo 27 5/18/10	Excavation from off-site clay source.



Photo 28 5/17/10	GPS dozer spreading clay hauled in by belly dumps into thin lifts, looking east.

Pond 3S 2009 and 2010 Construction Photographs



Photo 29 5/17/10	Vibratory sheepsfoot roller compacting clay lift. Lifts were no more than 6 inches thick once compacted.



Photo 30 5/18/10	Technicians using a Nuclear Gauge to determine the in-place density and moisture of the compacted clay, looking northeast.

Pond 3S 2009 and 2010 Construction Photographs



Photo 31 5/18/10	Dozer extracting thin-wall sample from the clay anchor, looking south.



Photo 32 5/19/10	Finished surface of clay anchor. Top of clay anchor is smooth rolled after all lifts have been compacted with a sheepsfoot roller and met all testing requirements.

Pond 3S 2009 and 2010 Construction Photographs



Photo 33 5/28/10	GCL deployed in anchor trench cut into south clay anchor.



Photo 34 7/15/10	Vibratory sheepsfoot roller used to compact the backfilled clay in the southeast corner liner anchor trench, looking southwest.

Pond 3S 2009 and 2010 Construction Photographs



Photo 35 6/25/10	Foreground: GCL and geomembrane deployed on the north end of the east embankment. Background: Water accumlation in the base of the pond after a large rain event. Looking south.



Photo 36 7/5/10	Orange line marking previous high water elevation after large rain event. GCL deployed on top of previously hydrated GCL to orange line, underlain by accessory bentonite.

Pond 3S 2009 and 2010 Construction Photographs



Photo 37 6/7/10	Left: 8 inch perforated dewatering lateral pipe underlain by geomembrane rubsheet and 6 inches of coarse filter aggregate. Middle: Layer of coarse aggregate over lateral. Right: Excavator placing fine aggregate over the coarse aggregate, assisted by laborer. Looking east.



Photo 38 5/28/10	Left: Excavator placing coarse aggregate on west dewatering header. Background: GPS dozer placing GDM on the west half of the pond base, assisted by laborers.

Pond 3S 2009 and 2010 Construction Photographs



Photo 39 5/28/10	West dewatering header and northern dewatering lateral pipe cross, looking southwest.



Photo 40 7/26/10	West 30 inch dewatering pipe and sump, looking west.

Pond 3S 2009 and 2010 Construction Photographs



Photo 41 8/23/10	Galvanized channel pipe weight installation on the west 30 inch dewatering pipe, looking northeast.



Photo 42 7/27/10	Excavator placing fine filter aggregate over the primary lateral and east dewatering sump, looking northwest.

Pond 3S 2009 and 2010 Construction Photographs



Photo 43 5/14/10	One inch blind hole cut through both geomembrane and GCL on the north slope. The location of the hole was surveyed and covered with two feet of GDM prior to electronic leak location testing. The location of the hole was unknown to the leak testers.



Photo 44 6/2/10	¼ inch hole cut through geomembrane only used to calibrate and verify the leak location equipment before, during, and after each day of leak testing.

Pond 3S 2009 and 2010 Construction Photographs



Photo 45 6/2/10	Leak location testers surveying the north slope on a string line grid, five foot apart during the first phase of leak testing.



Photo 46 6/2/10	One inch blind hole from photo 43 found by leak location testers on the north slope.

Pond 3S 2009 and 2010 Construction Photographs



Photo 47 6/4/10	Leak location testers surveying the west half of the pond base during the second phase of leak testing. The testers followed two to three inch deep grooves cut into the GDM five feet apart that allowed access to the moisture underlying the top crust. Looking west.



Photo 48 7/22/10	Water truck using cannon to water the top crust of the GDM in the northeast corner prior to leak location testing.

Pond 3S 2009 and 2010 Construction Photographs



Photo 49 7/22/10	Leak location tester calibrating to ¼ inch hole prior to surveying.



Photo 50 8/14/2010	Small pump inside perforated bucket located inside temporary trench box. Pump was used to access geomembrane in dewatering trench, following detection of a leak.

Pond 3S 2009 and 2010 Construction Photographs



Photo 51 8/14/2010	Laborer excavating GDM inside of bucket to access geomembrane.



Photo 52 8/14/2010	Laborer placing dry granular bentonite in and around bucket, directly on the geomembrane, creating a bentonite plug.

Pond 3S 2009 and 2010 Construction Photographs



Photo 53 8/14/2010	The bucket from Photo 52 was removed and the bentonite plug was covered with three feet of GDM overburden. Subsequent leak location testing in the area of the plug did not detect any other defects. Looking northwest.



Photo 54 8/19/10	12 inches of insulation and reinforced polyethylene sheeting over Pond 2 dewatering well.

Pond 3S 2009 and 2010 Construction Photographs



Photo 55 8/25/10	Off-roader and dozer placing a single lift, four feet thick of random fill on the west slope, looking southwest.



Photo 56 9/7/10	6 inches of topsoil placed on the west and south slopes down to elevation 965.

Pond 3S 2009 and 2010 Construction Photographs



Photo 57 9/29/10	Excavating bottom ash material from bottom ash pond, looking east.



Photo 58 9/10/10	Foreground: Bottom ash placed on the east embankment by dozers in a single four foot lift. Middle: Surveyor using GPS rover to verify bottom ash thickness. Background: Laborers extending 8 inch clean out pipe using butt fusing machine.

Pond 3S 2009 and 2010 Construction Photographs



Photo 59 9/21/10	Vibratory smooth drum roller compacted bottom ash lift, looking east.



Photo 60 10/5/10	Excavator lifting up 30 inch dewatering pipe, vibratory smooth drum roller compacting underneath pipe.

Pond 3S 2009 and 2010 Construction Photographs



Photo 61 9/9/10	Skid steer excavating riprap flume in the northwest corner of the pond, looking southeast.



Photo 62 9/10/10	Riprap flume and plunge pool underlain by woven geotextile, looking southeast.

Pond 3S 2009 and 2010 Construction Photographs



Photo 63 9/13/10	Bottom ash dredge pipe discharging into riprap plunge pool, looking south.



Photo 64 9/21/10	Tractor broadcasting seed on the exterior of the east embankment.

Pond 3S 2009 and 2010 Construction Photographs



Photo 65 9/21/10	Erosion blanket installation on the exterior of the east embankment, looking south.



Photo 66 11/3/10	Dozer spreading class 5 gravel into lifts, vibratory smooth drum roller compacting lifts.

Pond 3S 2009 and 2010 Construction Photographs



Photo 67 10/26/10	Skid steer and laborers removing Pond 3N composite upper flap, looking west.



Photo 68 10/26/10	Random fill excavated from the Pond 3 weir, looking south.

Pond 3S 2009 and 2010 Construction Photographs



Photo 69 10/26/10	Material excavated from the Pond 3 weir spread by off-roaders in the north end of the east embankment.



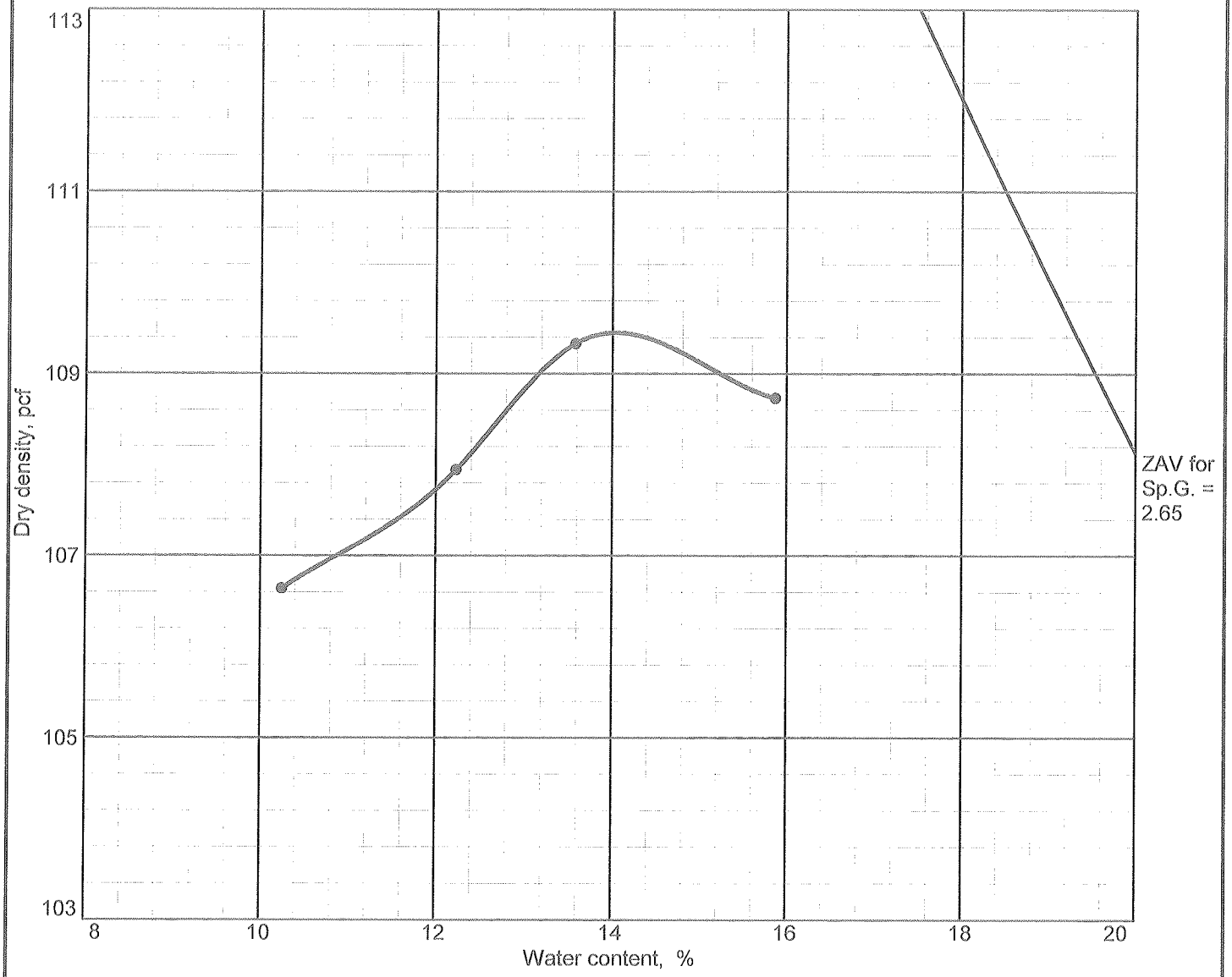
Photo 70 11/9/10	Pond 3 weir, looking southwest.

Random Fill Test Reports

Random Fill Standard Proctor Test Reports
Random Fill In-place Density Test Reports (2009 construction)
Random Fill In-place Density Test Reports (2010 construction)

Random Fill Standard Proctor Test Reports (Samples taken during 2009 construction)

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SP		2.9	2.65	N/A	N/A		1.3

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 113.1 pcf Optimum moisture = 12.8 %	SP - POORLY GRADED SAND, fine-to medium-grained, with a little Gravel, brown

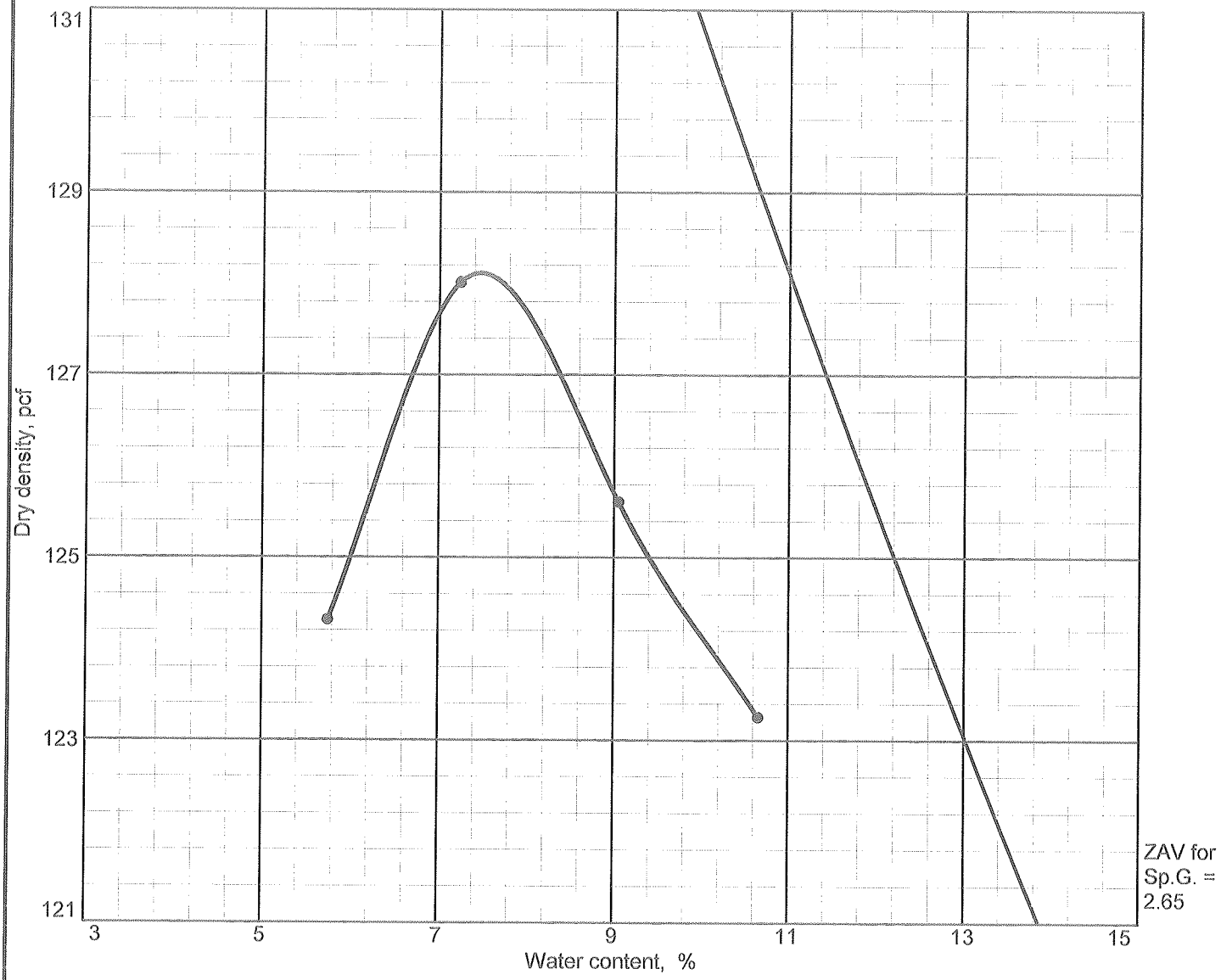
Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.
Project: Pond 3 South Construction

● **Source:** **Sample No.:** RFP-1

Remarks:

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SM		5.9	2.65	N/A	N/A	14.0	14.2

TEST RESULTS

Maximum dry density = 132.3 pcf

Optimum moisture = 6.5 %

MATERIAL DESCRIPTION

SM - SILTY SAND, fine-to medium-grained, with GRAVEL, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

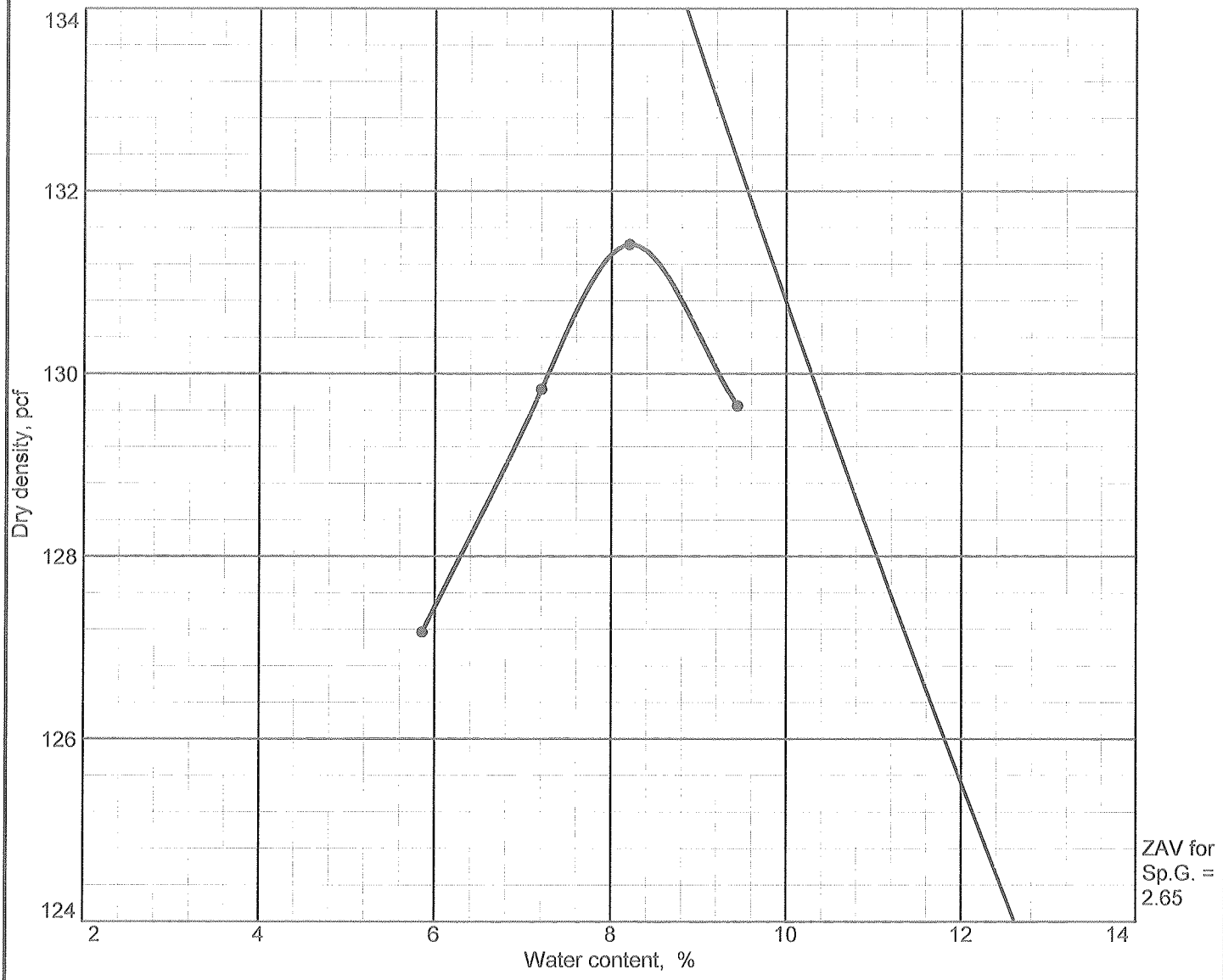
Project: Pond 3 South Construction

Source: **Sample No.:** RFP-2

Remarks:

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SM		7.0	2.65	N/A	N/A	8.8	20.8

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 133.8 pcf Optimum moisture = 7.6 %	SM - SILTY SAND, fine-to medium-grained, with a little Gravel, brown

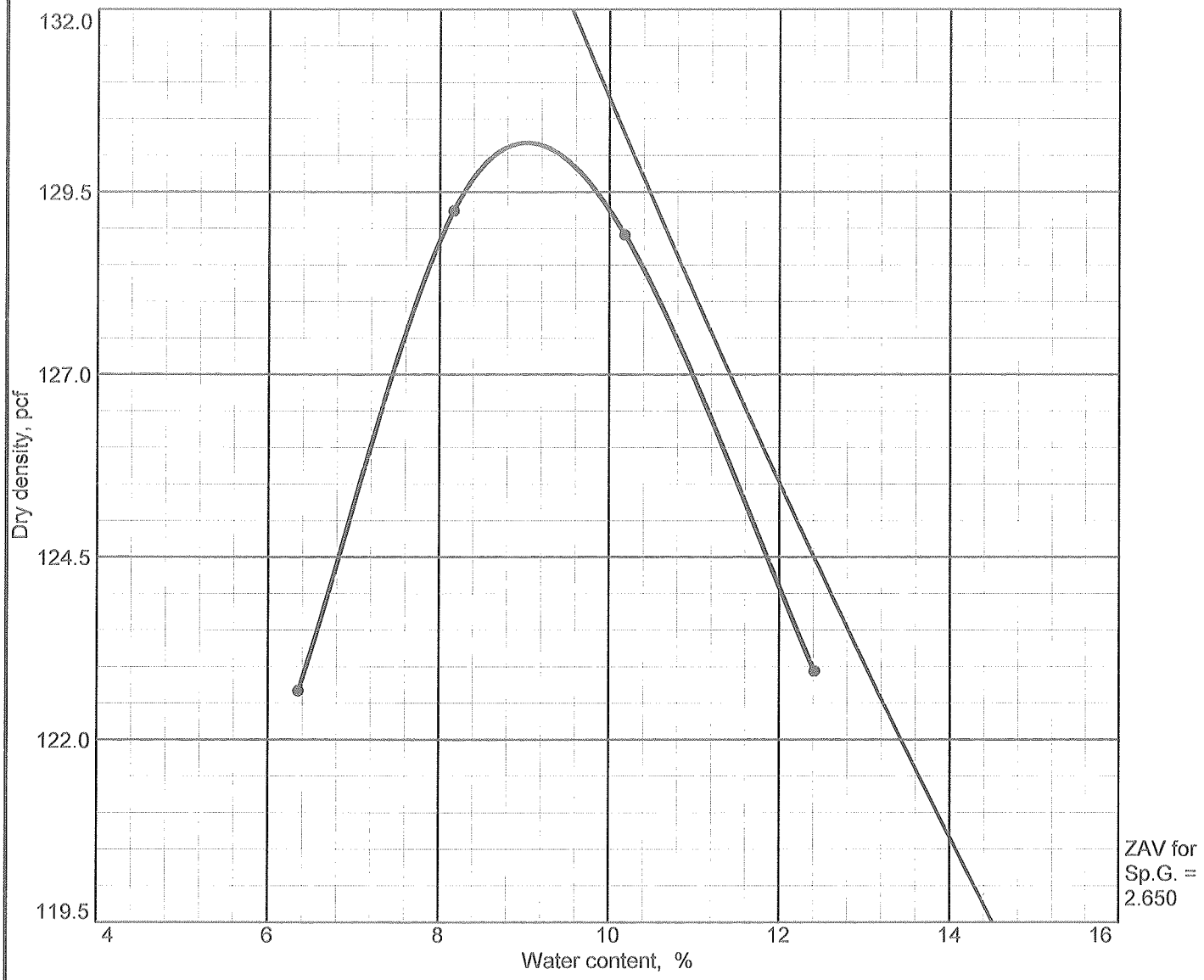
Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.
Project: Pond 3 South Construction

● **Source:** **Sample No.:** RFP-3

Remarks:

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SM		8.3	2.650	Not Tested	Not Tested		25.0

TEST RESULTS

Maximum dry density = 132.8 pcf

Optimum moisture = 8.2 %

MATERIAL DESCRIPTION

SM - SILTY SAND, fine-to medium-grained, with a little Gravel, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

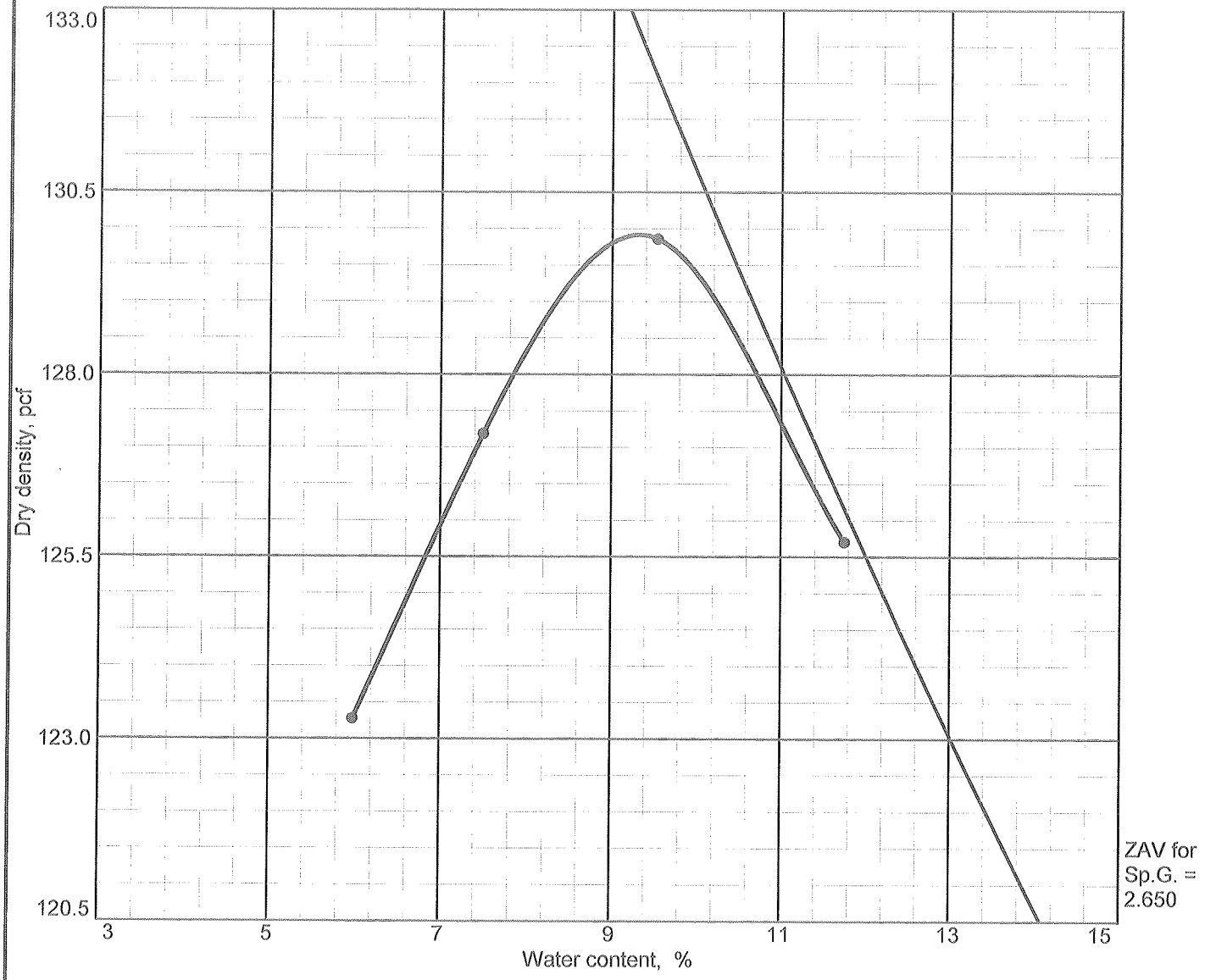
Project: Pond 3 South Construction

● **Source:** **Sample No.:** RFP-4

Remarks:

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SM		6.8		Not Tested	Not Tested	12.4	24.4

TEST RESULTS

Maximum dry density = 133.5 pcf

Optimum moisture = 8.3 %

MATERIAL DESCRIPTION

SM - SILTY SAND, fine-to medium-grained, with GRAVEL, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

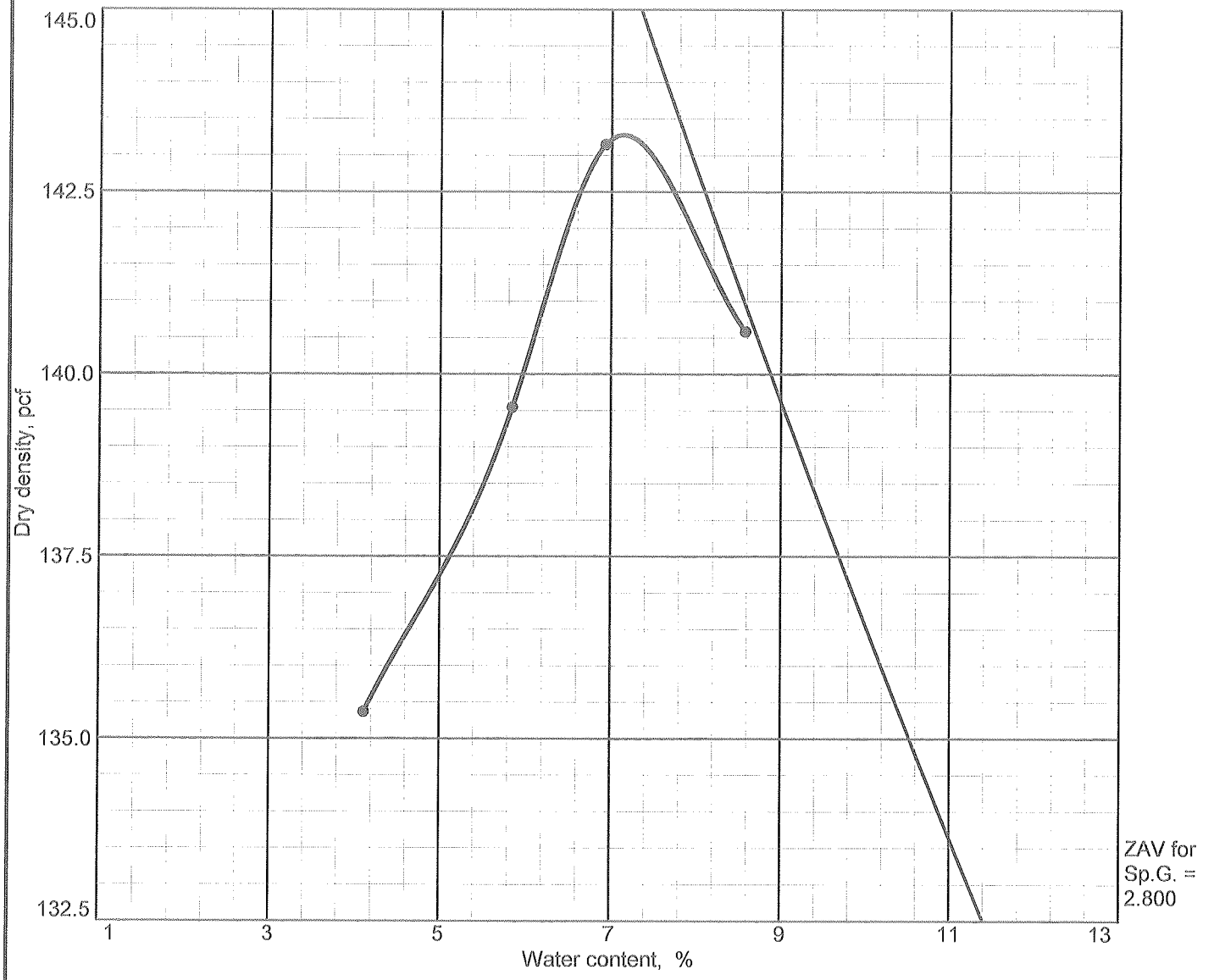
Project: Pond 3 South Construction

Remarks:

● **Source:** **Sample No.:** RFP-5

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method C Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
	SP-SM		6.5	2.800	Not Tested	Not Tested	25.0	8.6

TEST RESULTS

Maximum dry density = 150.0 pcf

Optimum moisture = 5.5 %

MATERIAL DESCRIPTION

SP-SM - POORLY GRADED SAND, fine-to medium-grained, with silt and GRAVEL, brown

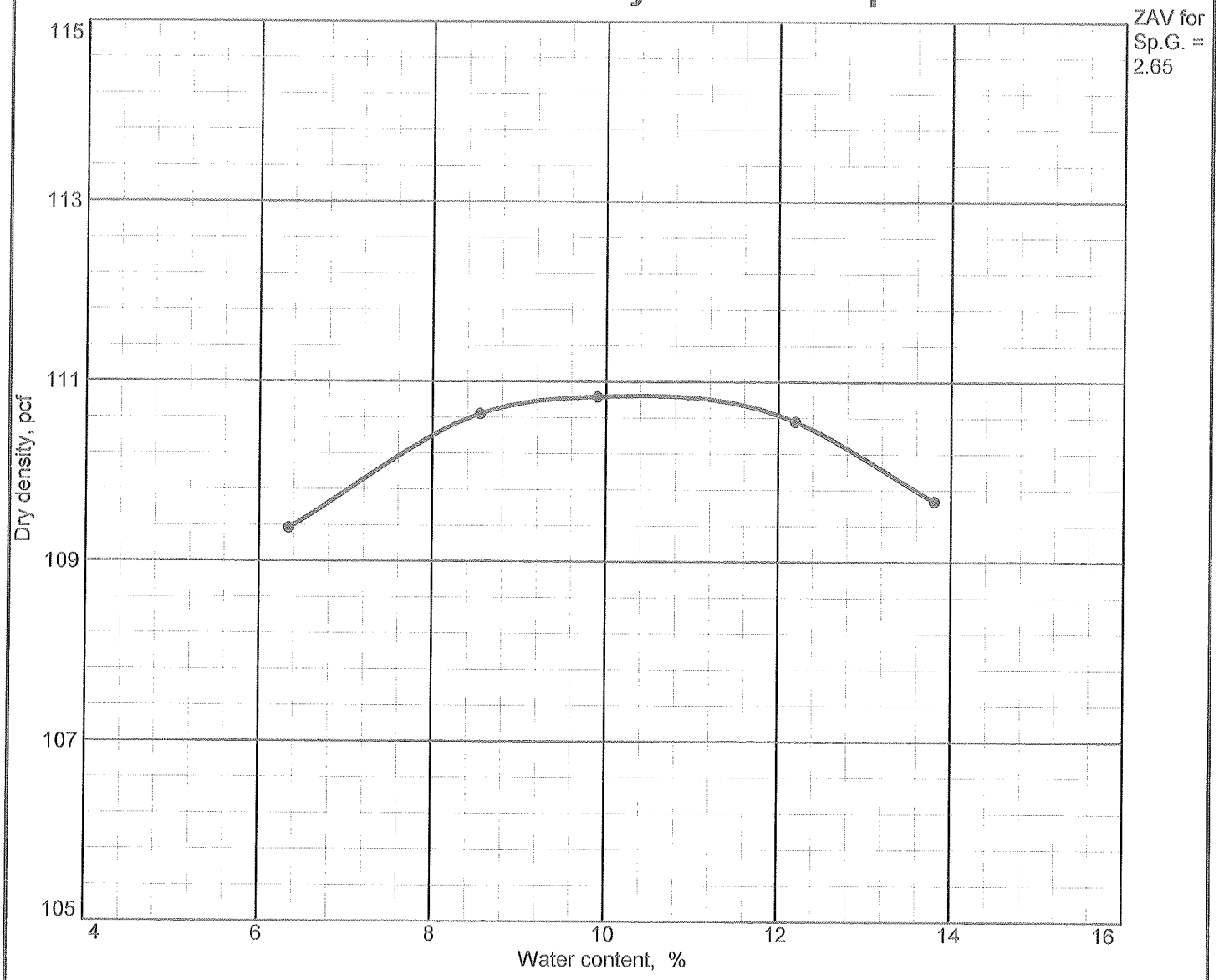
Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.
Project: Pond 3 South Construction

● **Source:** **Sample No.:** RFP-6

Remarks:

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SP		3.1	2.65	N/A	N/A	7.7	0.5

TEST RESULTS

Maximum dry density = 113.7 pcf

Optimum moisture = 9.7 %

MATERIAL DESCRIPTION

SP - POORLY GRADED SAND, fine-to medium-grained, with a little Gravel, light brown

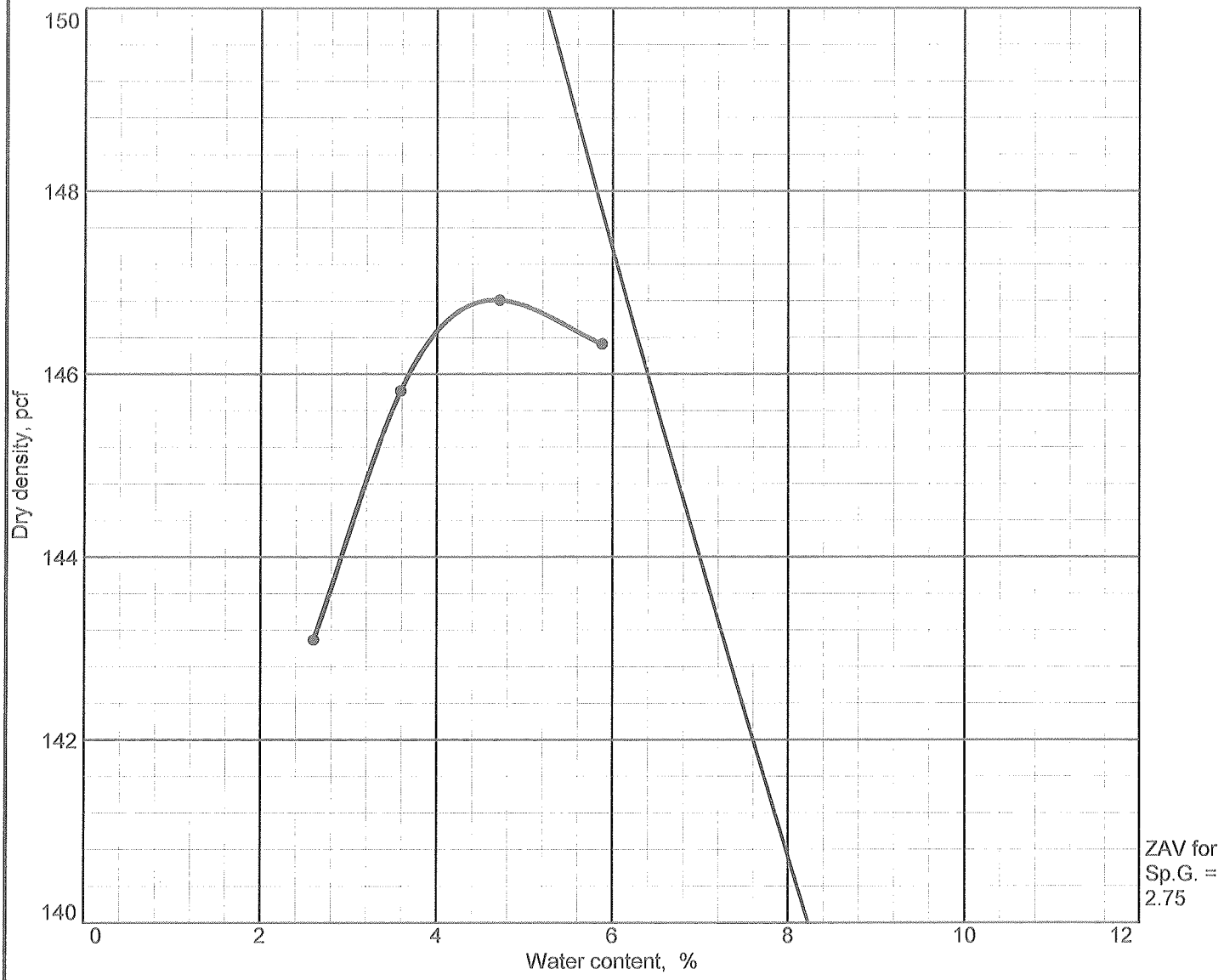
Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.
Project: Pond 3 South Construction

● **Source:** **Sample No.:** RFP-7

Remarks:

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Standard Special
Oversize correction applied to each point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 2 in.	% < No.200
	USCS	AASHTO						
	GP		4.3	2.75	N/A	N/A	26.1	4.5

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 146.8 pcf Optimum moisture = 4.7 %	GP - POORLEY GRADED GRAVEL, with Sand, brown

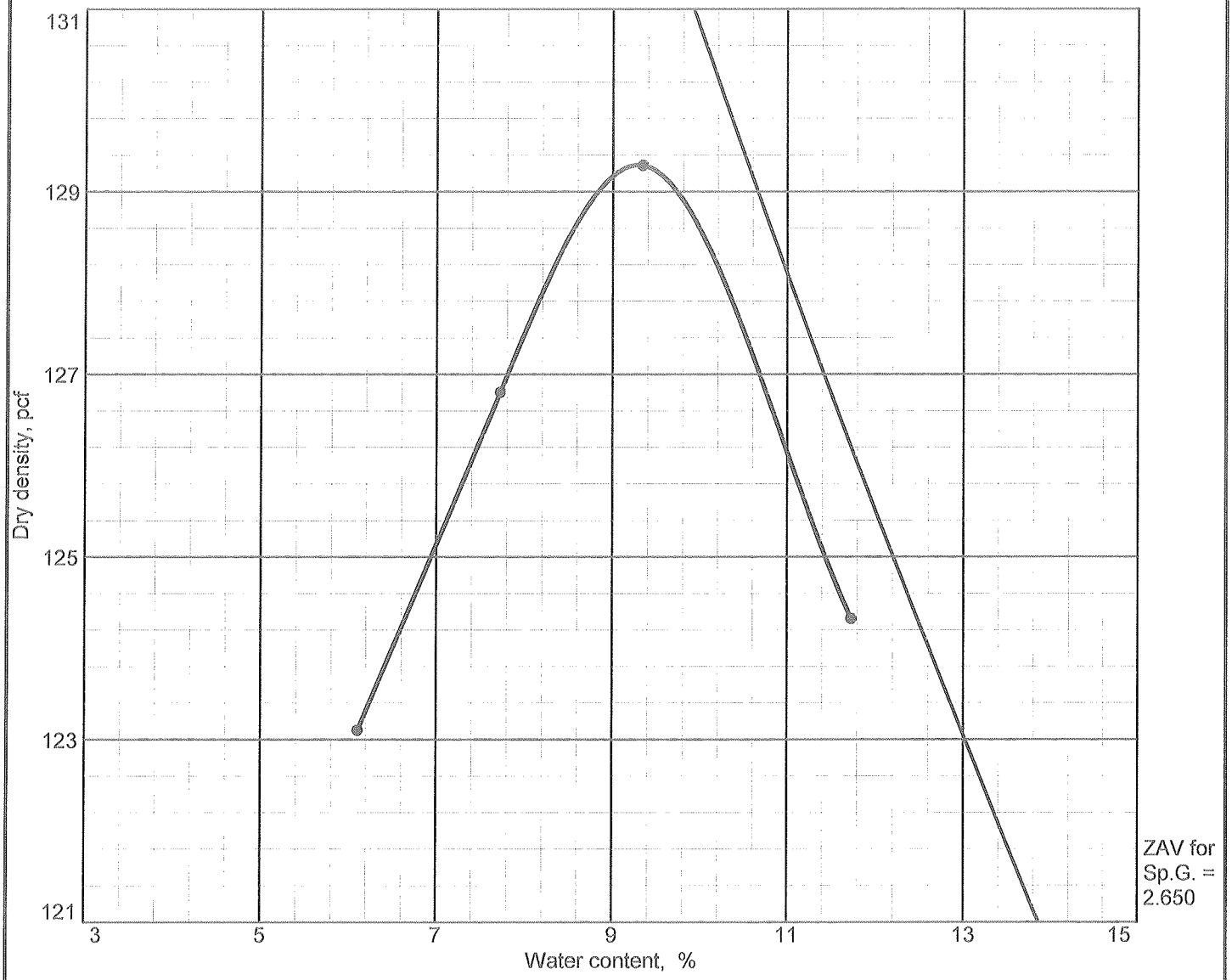
Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.
Project: Pond 3 South Construction

Source: **Sample No.:** RFP-8

Remarks:
Onsite

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SM		6.6	2.650	Not Tested	Not Tested	14.0	25.6

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 133.4 pcf Optimum moisture = 8.1 %	SM - SILTY SAND, fine-to medium-grained, with GRAVEL, brown

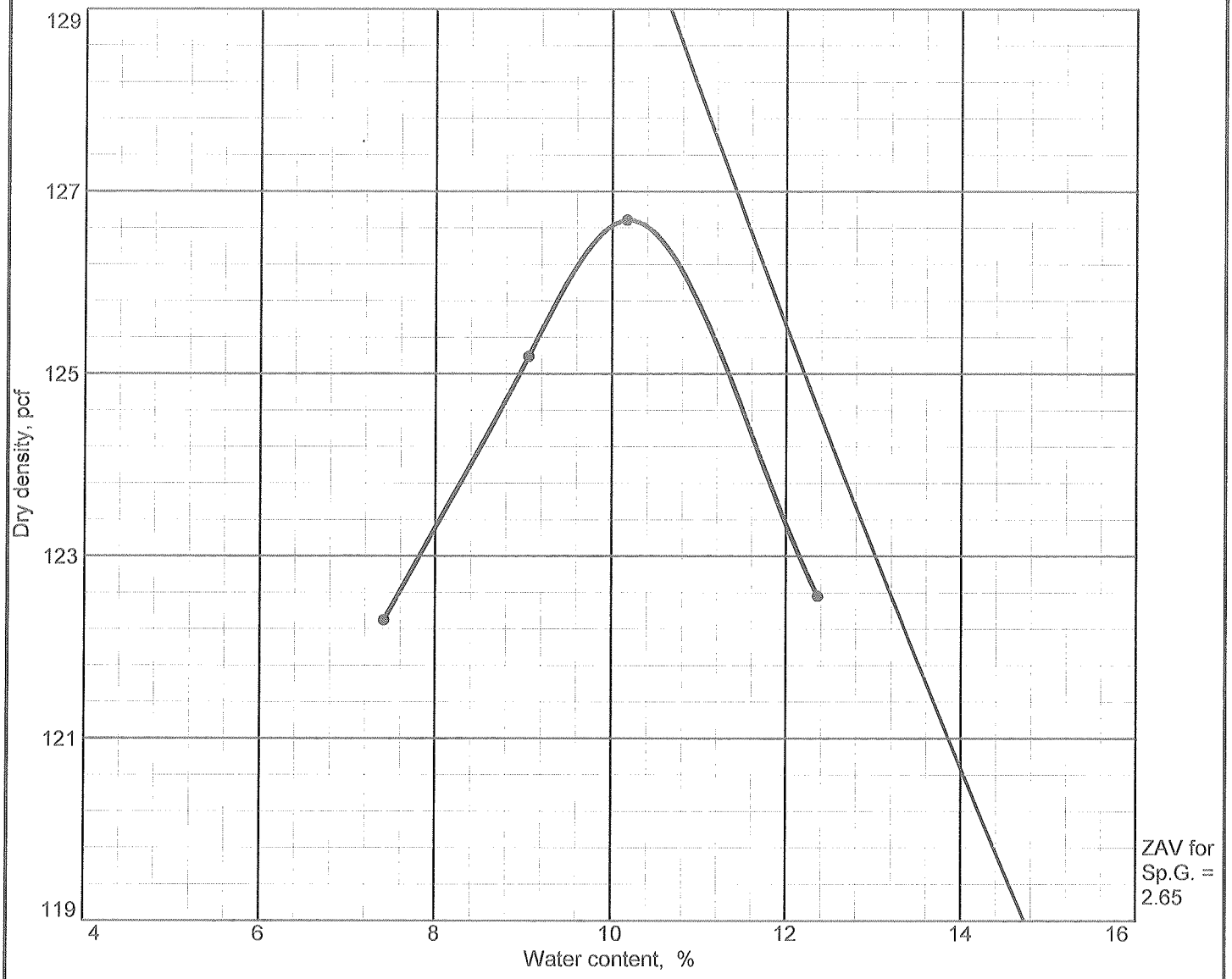
Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.
Project: Pond 3 South Construction

● **Source:** **Sample No.:** RFP-9

Remarks:

BRAUN™ INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SM		7.3	2.65	Not Tested	Not Tested	7.5	15.4

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 129.0 pcf Optimum moisture = 9.5 %	SM - SILTY SAND, fine-to medium-grained, with little Gravel, dark brown

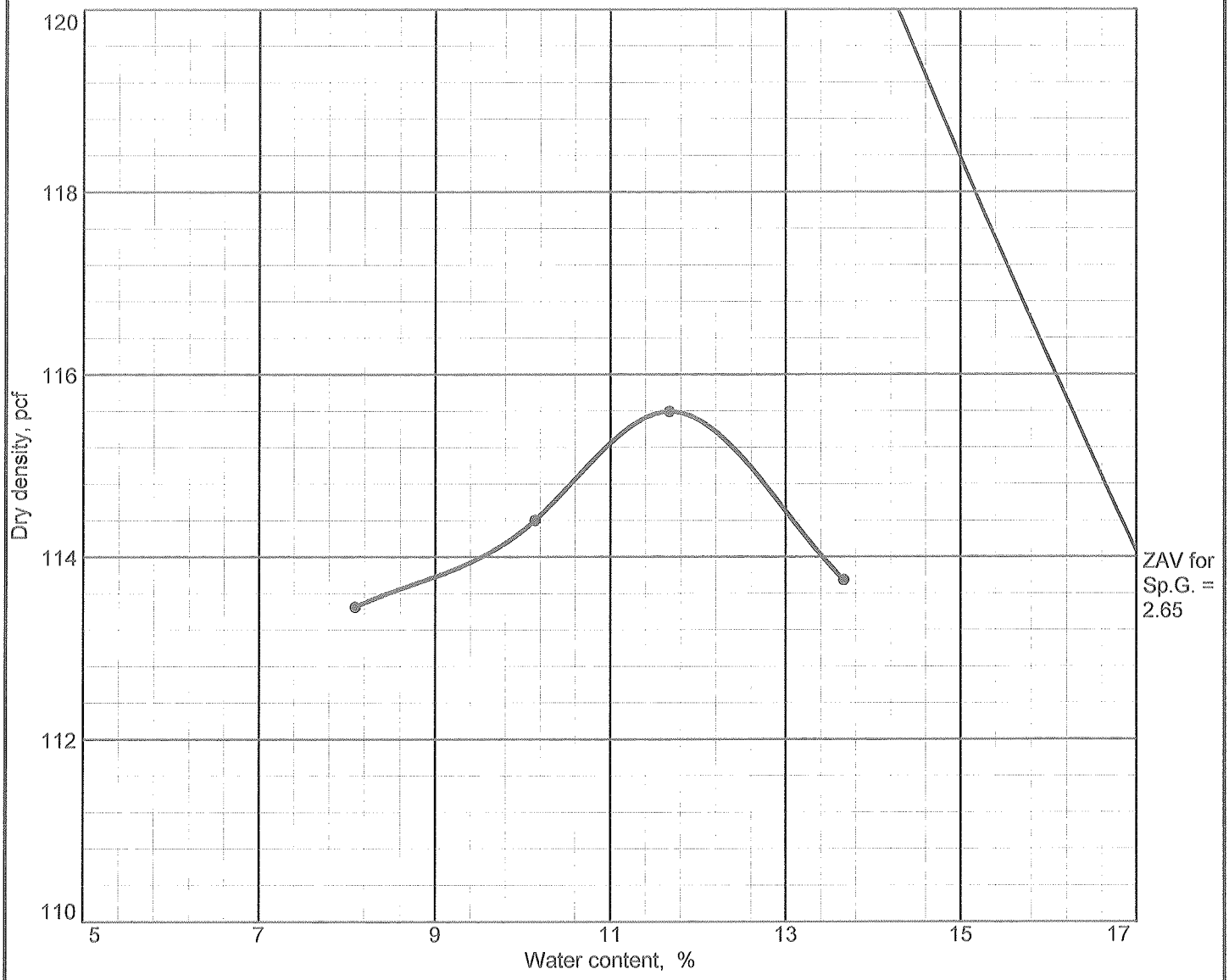
Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.
Project: Pond 3 South Construction

● **Source:** **Sample No.:** RFP-10

Remarks:
N. 862451.0 E. 2031030.0
Elevation = 958.0

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SP-SM		7.2	2.65	N/A	N/A	2.5	5.2

TEST RESULTS

Maximum dry density = 115.6 pcf

Optimum moisture = 11.7 %

MATERIAL DESCRIPTION

SP-SM - POORLY GRADED SAND, fine-to medium-grained, with silt and a little Gravel, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

Project: Pond 3 South Construction

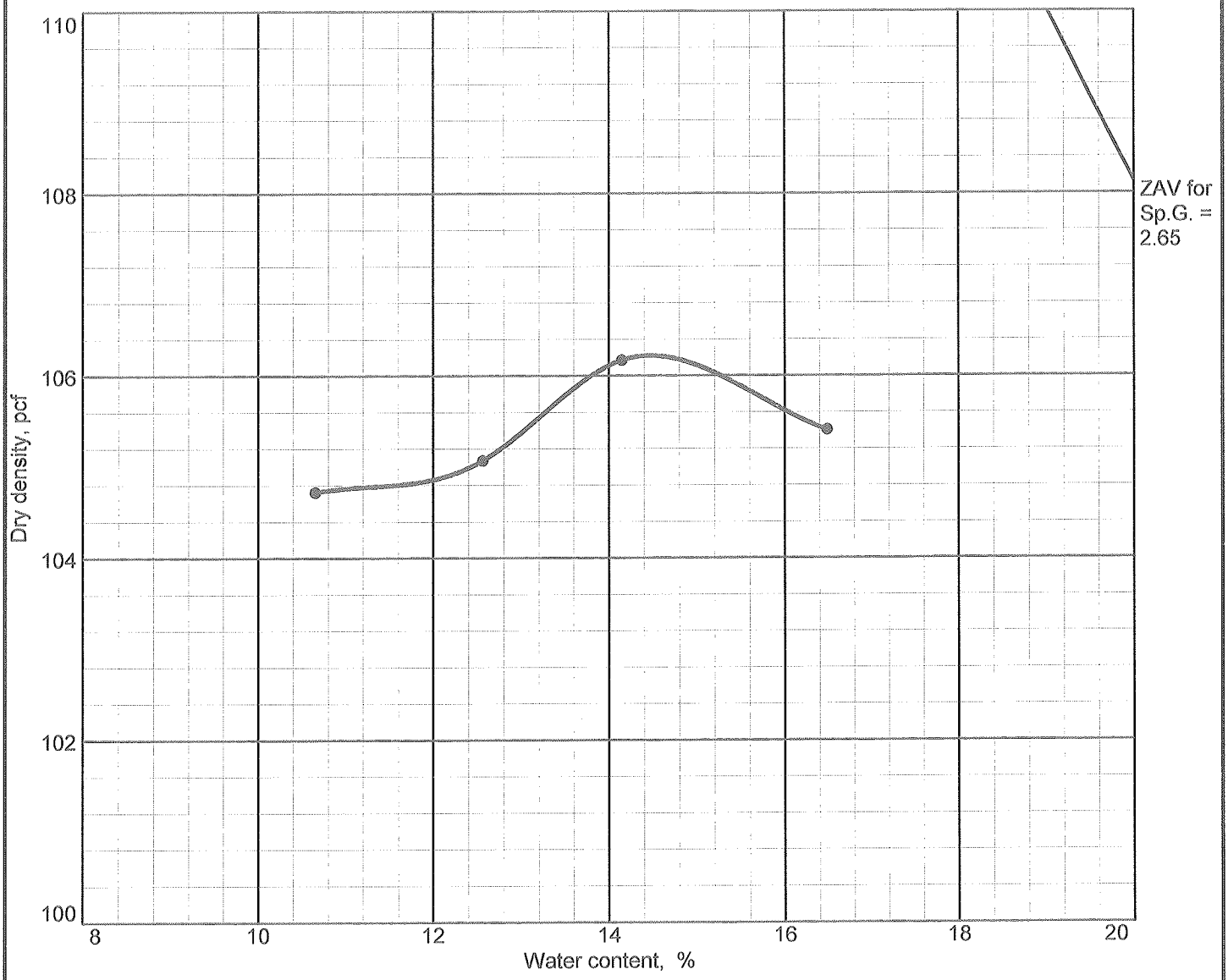
● **Source:** **Sample No.:** RFP-11

Remarks:

N. 862279.0 E. 2031296.0
Elevation = 960.0

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	SP		4.3	2.65	N/A	N/A	1.3	1.1

TEST RESULTS

Maximum dry density = 106.2 pcf

Optimum moisture = 14.5 %

MATERIAL DESCRIPTION

SP - POORLY GRADED SAND, fine-to medium-grained, with a trace of Gravel, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

Project: Pond 3 South Construction

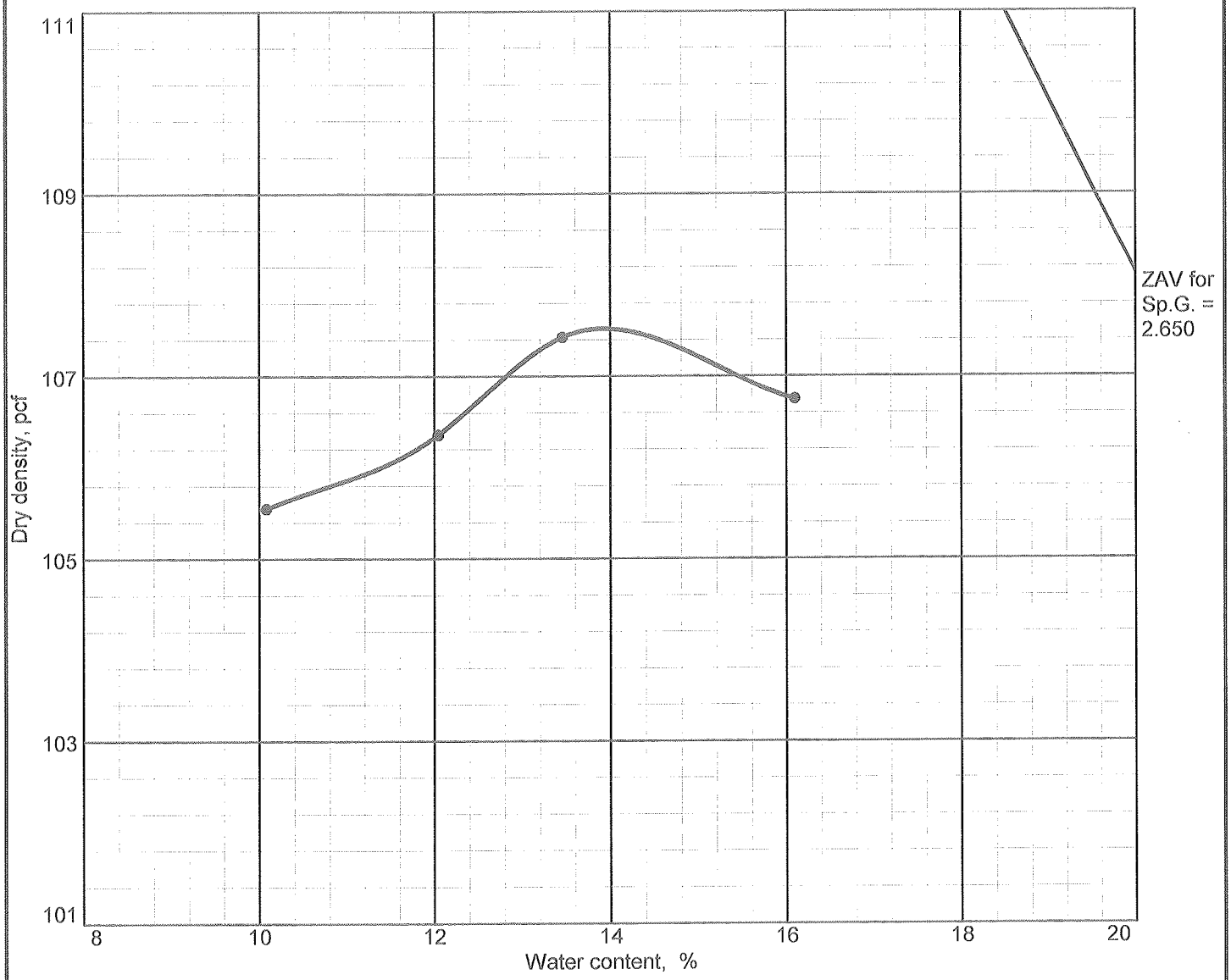
Source: **Sample No.:** RFP-12

Remarks:

Onsite Stockpile

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SP		4.2	2.650	N/A	N/A	2.2	0.9

TEST RESULTS

Maximum dry density = 107.5 pcf

Optimum moisture = 13.9 %

MATERIAL DESCRIPTION

SP - POORLY GRADED SAND, fine-to medium-grained, with a trace of Gravel, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

Project: Pond 3 South Construction

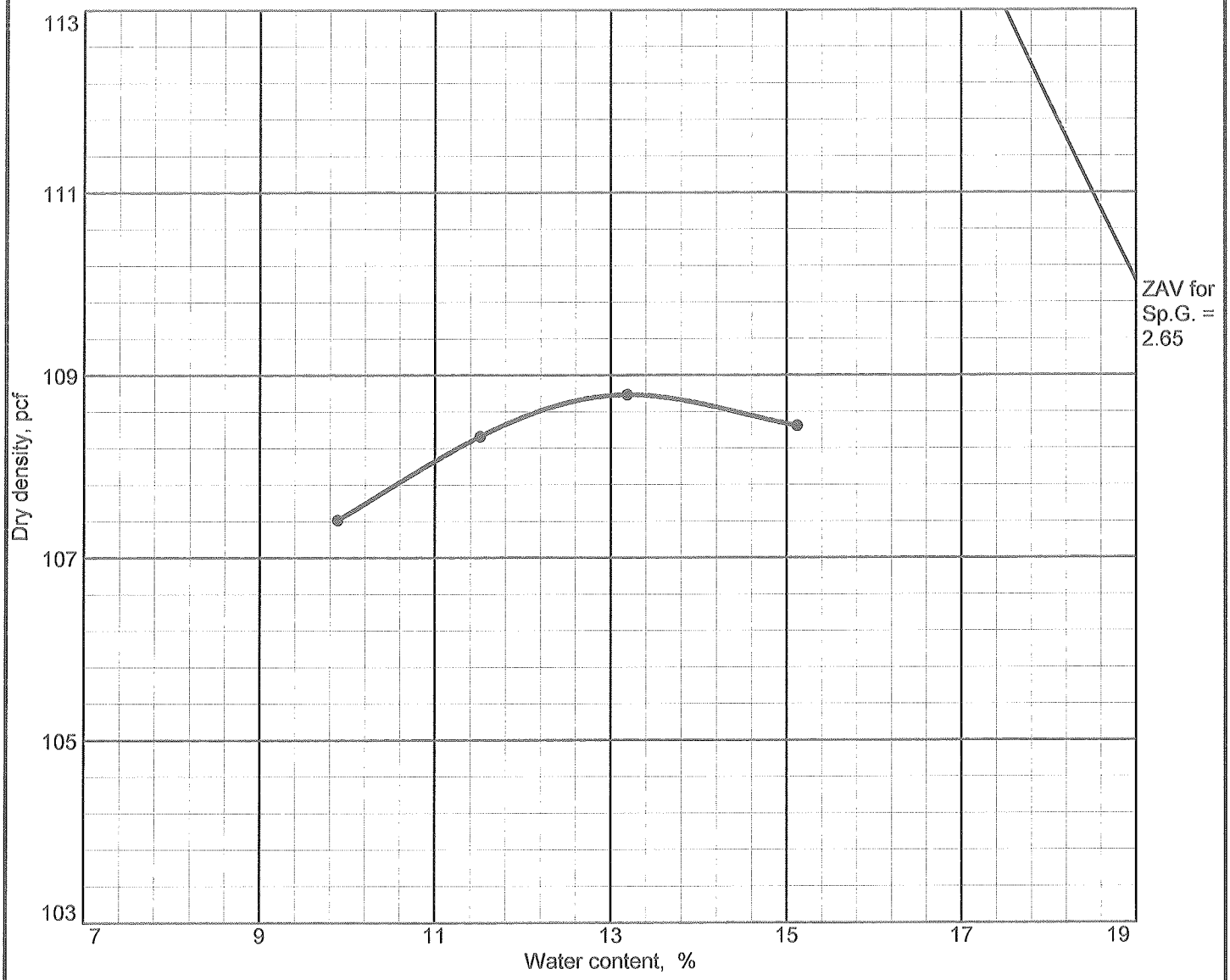
● **Source:** **Sample No.:** RFP-13

Remarks:

Onsite Stockpile

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	SP		4.7	2.65	N/A	N/A	4.5	1.4

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 108.8 pcf Optimum moisture = 13.2 %	SP - POORLY GRADED SAND, fine-grained, with a trace of Gravel, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

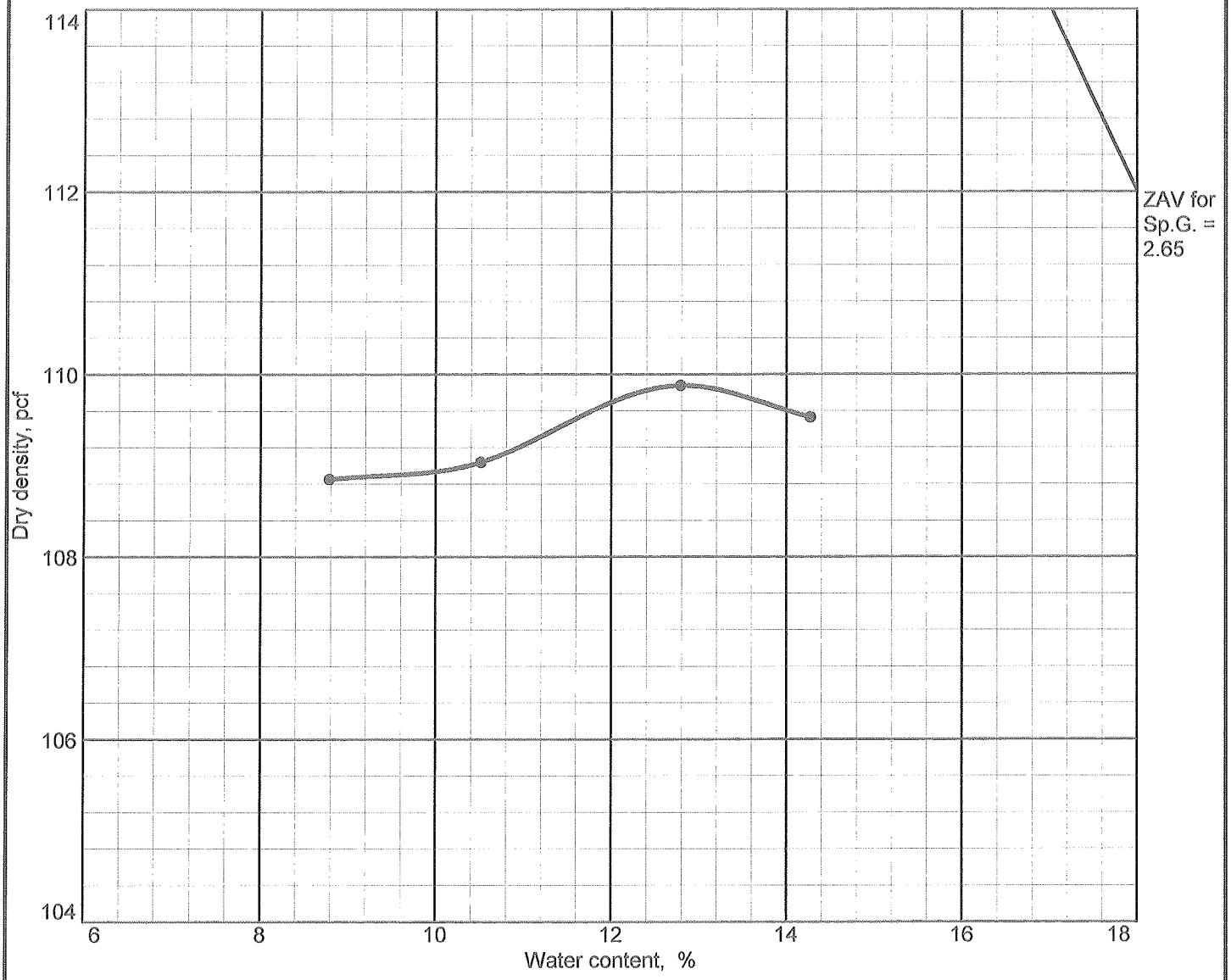
Project: Pond 3 South Construction

Remarks:

● **Source:** **Sample No.:** RFP-14

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	SP		3.6	2.65	N/A	N/A	1.8	2.3

TEST RESULTS

Maximum dry density = 109.9 pcf

Optimum moisture = 12.8 %

MATERIAL DESCRIPTION

SP- POORLY GRADED SAND, fine-grained, with a trace of Gravel, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

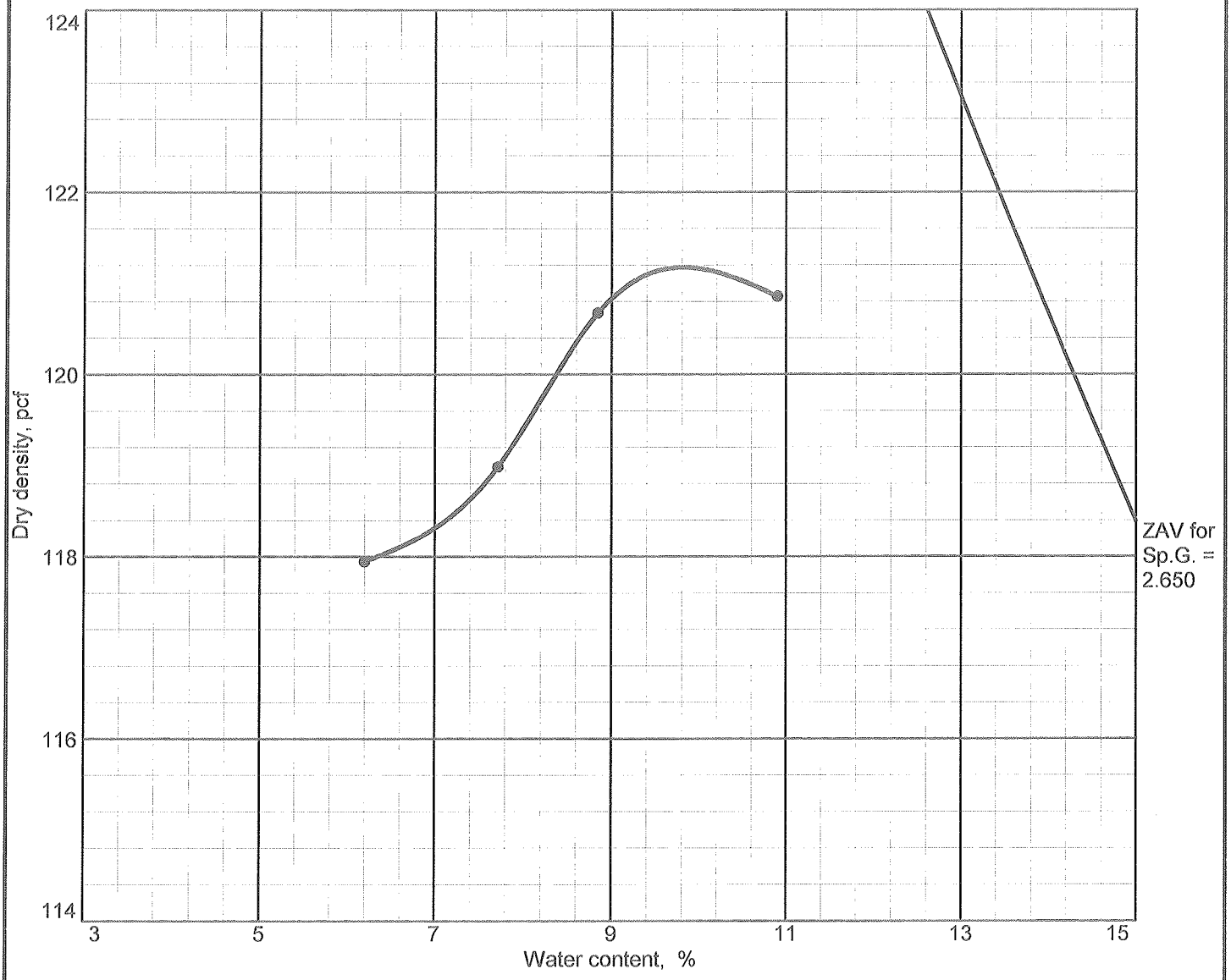
Project: Pond 3 South Construction

● **Source:** **Sample No.:** RFP-15

Remarks:

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method C Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
	SP		3.1	2.650	N/A	N/A	19.2	1.5

TEST RESULTS

Maximum dry density = 127.7 pcf

Optimum moisture = 8.0 %

MATERIAL DESCRIPTION

SP - POORLY GRADED SAND, medium-to coarse-grained, with GRAVEL, light brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

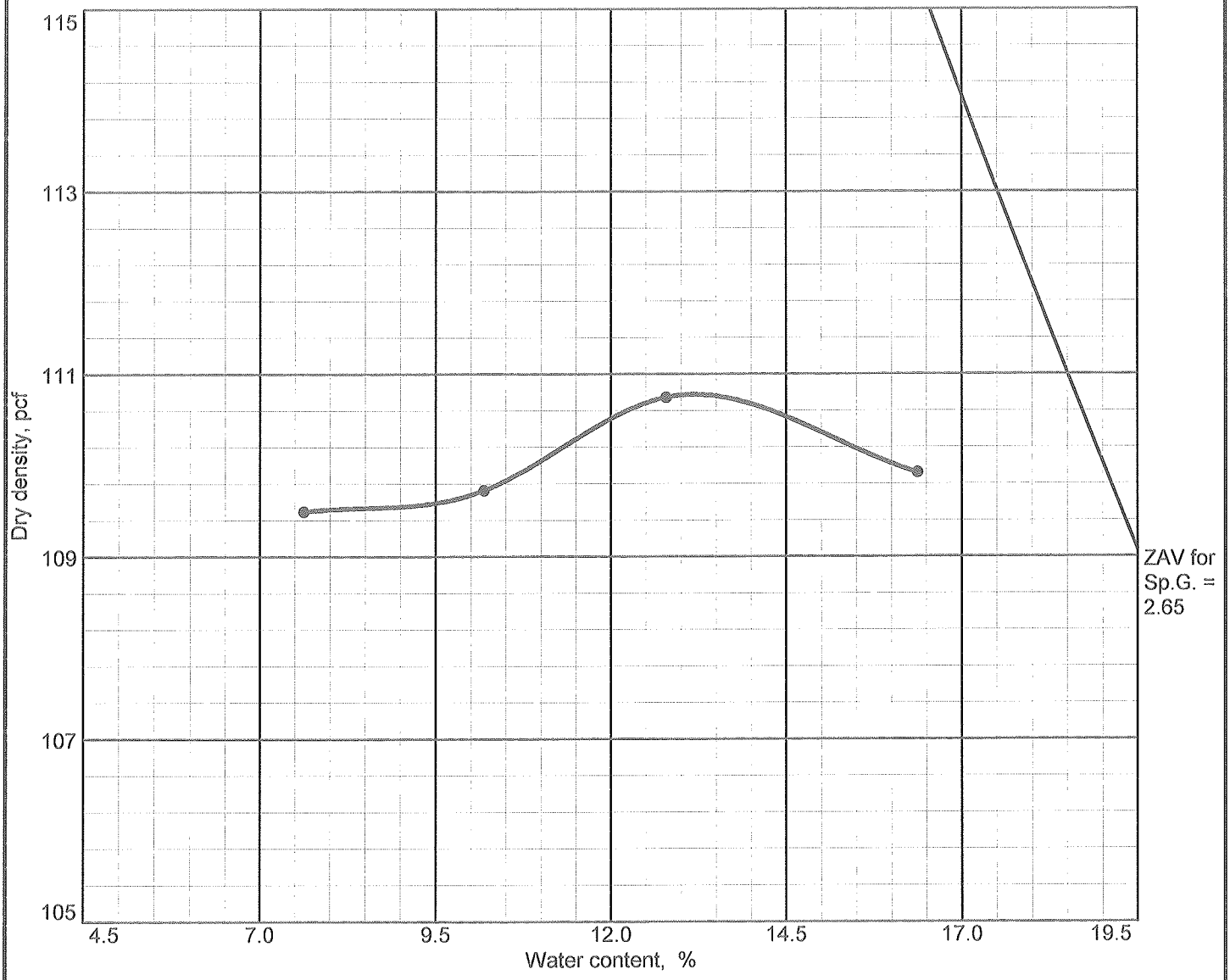
Project: Pond 3 South Construction

● **Source:** **Sample No.:** RFP-16

Remarks:

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SP		13.0	2.65	N/A	N/A	3.2	2.5

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 110.8 pcf Optimum moisture = 13.2 %	SP - POORLY GRADED SAND, fine-to medium-grained, with a little Gravel, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

Project: Pond 3 South Construction

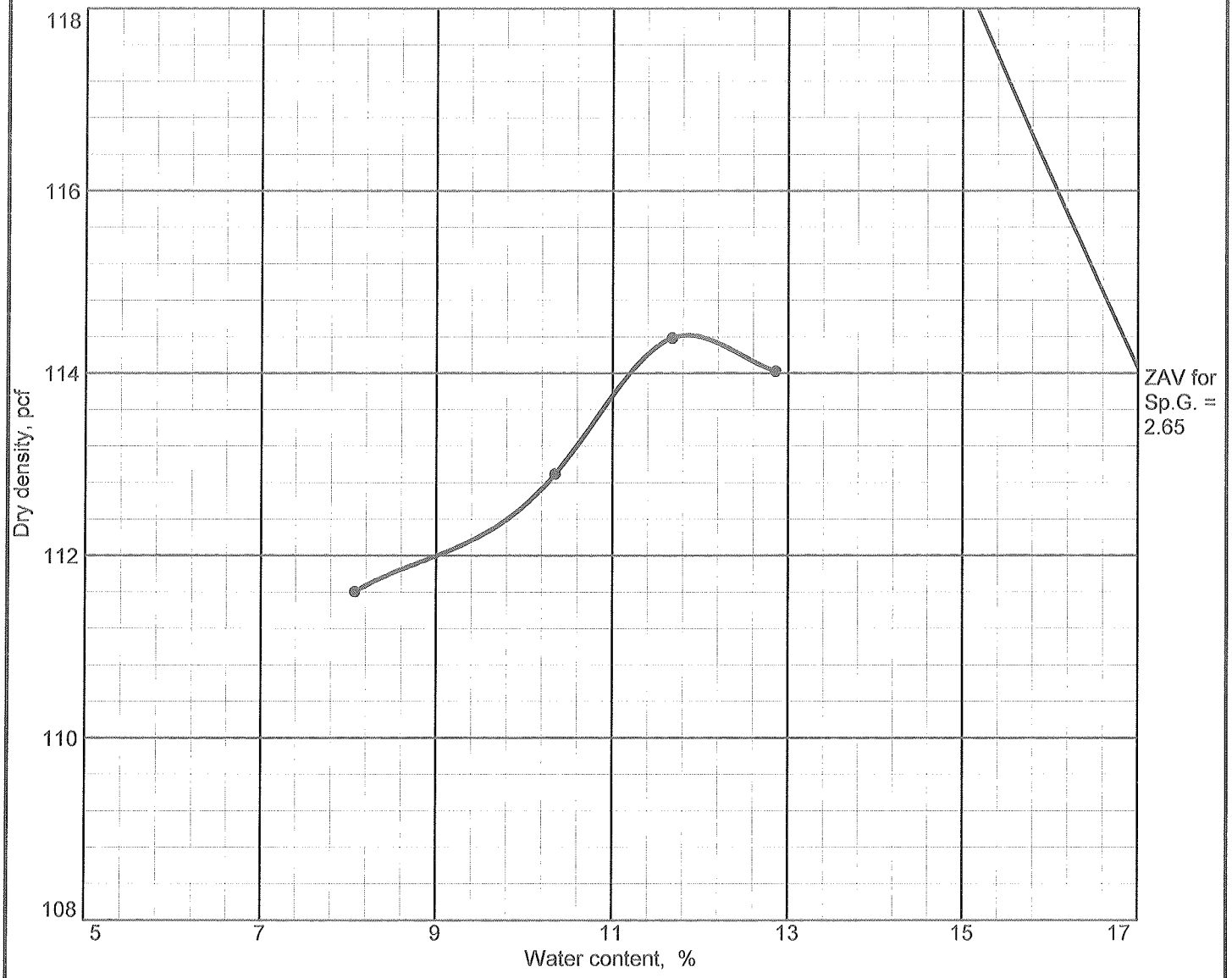
Source: **Sample No.:** RFP-17

Remarks:

N. 862368 E. 2031616
Elev. 964.0

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SP		10.1	2.65	N/A	N/A	6.1	

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 116.6 pcf Optimum moisture = 11.2 %	SP - POORLY GRADED SAND, fine-to medium-grained, with a little Gravel, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.
Project: Pond 3 South Construction

● **Source:** **Sample No.:** RFP-18

Remarks:
N. 862689 E. 2031914
Elev. 953.5

BRAUN INTERTEC

Random Fill In-place Density Test Reports (2009 construction)

BRAUN INTERTEC

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Report of Field Compaction Tests

Date: October 22, 2009 **Project:** SC-09-01367B **Report:** 1

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-1	10/16/09	N	RFP-9	8.1	133.4	5.0	127.0	95	95	A
RF-2	10/16/09	N	RFP-10	9.5	129.0	4.0	126.0	98	95	A
RF-3	10/16/09	N	RFP-1	12.8	113.1	4.0	114.0	101	95	A
RF-4	10/19/09	N	RFP-1	12.8	113.1	5.0	114.0	101	95	A
RF-5	10/19/09	N	RFP-10	9.5	129.0	6.0	123.0	95	95	A
RF-6	10/19/09	N	RFP-7	9.7	113.7	4.0	115.0	101	95	A
RF-7	10/20/09	N	RFP-11	11.7	115.6	5.0	115.0	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-1	N 862499, E 2031162	954
RF-2	N 862451, E 2031030	958
RF-3	N 862549, E 2031390	952
RF-4	N 862317, E 2031709	955
RF-5	N 862363, E 2031442	953.5
RF-6	N 862279, E 2030692	961.5
RF-7	N 862298, E 2031829	955

Elevation Reference:

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Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: October 26, 2009 **Project:** SC-09-01367B **Report:** 2

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-8	10/20/09	N	RFP-11	11.7	115.6	6.0	116.0	100	95	A
RF-9	10/20/09	N	RFP-11	11.7	115.6	6.0	115.0	99	95	A
RF-10	10/22/09	N	RFP-10	9.5	129.0	10.0	125.0	97	95	A
RF-11	10/22/09	N	RFP-10	9.5	129.0	12.0	122.0	95	95	A
RF-12	10/22/09	N	RFP-11	11.7	115.6	8.0	118.0	102	95	A
RF-13	10/22/09	N	RFP-11	11.7	115.6	5.0	116.0	100	95	A
RF-14	10/22/09	N	RFP-11	11.7	115.6	5.0	118.0	102		A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-8	N 862279, E 2031296	955
RF-9	N 862259, E 2030831	963
RF-10	N 862412, E 2031898	955.5
RF-11	N 862410, E 2031635	954.5
RF-12	N 862396, E 2031295	955
RF-13	N 862430, E 2031019	962
RF-14	N 862335, E 2030871	965

Elevation Reference:

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Thomas L. Henkemeyer
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Report of Field Compaction Tests

Date: October 28, 2009 **Project:** SC-09-01367B **Report:** 3

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-15	10/22/09	N	RFP-11	11.7	115.6	7.0	120.0	104	95	A
RF-16	10/26/09	N	RFP-10	9.5	129.0	6	123	95	95	A
RF-17	10/26/09	N	RFP-10	9.5	129.0	5	124	96	95	A
RF-18	10/26/09	N	RFP-10	9.5	129.0	6	124	96	95	A
RF-19	10/27/09	N	RFP-11	11.7	115.6	12	116	100	95	A
RF-20	10/27/09	N	RFP-1	12.8	113.1	4	111	98	95	A
RF-21	10/27/09	N	RFP-1	12.8	113.1	3.0	109.0	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-15	N 862312, E 2031056	963
RF-16	N 862335, E 2031198	961.5
RF-17	N 862393, E 2031081	964
RF-18	N 862425, E 2030846	967.5
RF-19	N 862368, E 2031031	966 1/2
RF-20	N 862319, E 2030745	973
RF-21	N 862308, E 2030578	978.5

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: November 2, 2009 **Project:** SC-09-01367B **Report:** 4

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-22	10/28/09	N	RFP-11	9.5	129.0	5	123	95	95	A
RF-23	10/28/09	N	RFP-11	9.5	129.0	5	123	95	95	A
RF-24	10/28/09	N	RFP-3	7.6	133.8	4	128	96	95	A
RF-25	10/28/09	N	RFP-11	9.5	129.0	7	124	96	95	A
RF-26	10/29/09	N	RFP-7	9.7	113.7	8	111	98	95	A
RF-27	10/29/09	N	RFP-11	11.7	115.6	11	118	102	95	A
RF-28	10/29/09	N	RFP-10	9.5	129.0	8	126	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-22	N 862369, E 2030968	968.5
RF-23	N 862303, E 2030888	972
RF-24	N 862388, E 2030802	969.5
RF-25	N 862307, E 2030704	978
RF-26	N 862434, E 2030942	969
RF-27	N 862525, E 2030932	965.5
RF-28	N 862402, E 2031102	965.5

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Thomas L. Henkemeyer
Project Manager

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Minnesota Department of Transportation

Office of Materials and Road Research

Relative Density Test Grading & Base Construction

S. P. No: _____

Test Identification Data					
Date	10/29/09				
Test No.	RF-28SC				
Soil Class or 3138 Class	SM				
Station	N. 862402				
Roadway: Position to Center Line	E. 2031102				
Depth Below Grade	EL. 965.5				
Volume Determination (sand cone)					
A. Wt. Sand & Container Before	13.00				
B. Wt. Sand & Container After	5.22				
C. Wt. Sand in Funnel & Hole A-B	7.78				
D. Wt. Sand in Funnel (from Calib)	3.73				
E. Wt. Sand in in Hole C-D	4.05				
Inplace Dry Density Determination (Field Density Test)					
Container No.					
- Burner Method -					
F. Wt. Wet Soil + Pan	478.7				
G. Wt. Dry Soil + Pan	438.7				
H. Wt Moisture F-G	40.0				
J. Wt Pan	0.0				
K. Wt. Wet Soil F-J	478.7				
- Speedy Method -					
M. Dial Reading					
N. Sample Size Factor					
P. % Moisture - Wet Wt. H/K*100 or M*N	8.4				
R. Total Wt. Wet Mat. From Hole	5.95				
S. Wt.Moist. in Mat. from Hole R x P/100	0.50				
T. Dry Wt.of Mat. from Hole R - S	5.45				
U. Unit Wt. of Sand lb/f^3	91.8				
V. Dry Density lb/f^3 T/E x U	123.6				
Relative Density Determination					
W. Std Maximum Density	129.0				
Specs.	95				
Relative Density % V/W x 100	96				
Curve No.	RFP-10				
Inspector:	AJJ				
Project Engineer	See Grading and Base Manual 5-692.251 (M) or 5-692.251 (E)				

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Report of Field Compaction Tests

Date: November 1, 2009 **Project:** SC-09-01367B **Report:** 5

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-28SC	10/29/09	SC	RFP-10	9.5	129.0	8.4	123.8	96	95	A
RF-29	10/29/09	N	RFP-10	9.5	129.0	10	124	96	95	A
RF-30	10/29/09	N	RFP-10	9.5	129.0	10	123	95	95	A
RF-31	10/29/09	N	RFP-11	11.7	115.6	9	118	102	95	A
RF-32	11/2/09	N	RFP-1	12.8	113.1	5	111	98	95	A
RF-33	11/2/09	N	RFP-1	12.8	113.1	9	112	99	95	A
RF-34	11/2/09	N	RFP-10	9.5	129.0	7	125	97	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-28SC	N 862402, E 2031102	965.5
RF-29	N 862303, E 2031136	966.5
RF-30	N 862312, E 2030957	972.5
RF-31	N 862324, E 2030526	989
RF-32	N 862397, E 2031183	964.5
RF-33	N 862371, E 2030889	972
RF-34	N 862387, E 2030685	981.5

Elevation Reference:

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Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: November 11, 2009 **Project:** SC-09-01367B **Report:** 6

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-35	11/3/09	N	RFP-3	7.6	133.8	6	136	102	95	A
RF-36	11/3/09	N	RFP-8	4.7	133.8	6	139	104	95	A
RF-37	11/3/09	N	RFP-11	11.7	115.6	6	118	102	95	A
RF-38	11/3/09	N	RFP-11	11.7	115.6	12	118	102	95	A
RF-39	11/4/09	N	RFP-3	7.6	115.6	8	136	118	95	A
RF-40	11/4/09	N	RFP-1	12.8	113.1	6	110	97	95	A
RF-41	11/4/09	N	RF-1	12.8	113.1	6	113	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-35	N 862537, E 2031458	955
RF-36	N 862579, E 2031578	953
RF-37	N 862337, E 2030806	975.5
RF-38	N 862419, E 2030951	973.5
RF-39	N 862531, E 2031585	954.5
RF-40	N 862308, E 2031173	972
RF-41	N 862394, E 2031093	974.5

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Report of Field Compaction Tests

Date: November 11, 2009 **Project:** SC-09-01367B **Report:** 7

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-42	11/4/09	N	RFP-1	12.8	113.1	6	107	95	95	A
RF-43	11/5/09	N	RFP-5	8.3	133.5	9	136	102	95	A
RF-44	11/5/09	N	RFP-5	8.3	133.5	6	128	96	95	A
RF-45	11/5/09	N	RFP-5	8.3	133.5	6	131	98	95	A
RF-46	11/5/09	N	RFP-8	4.7	146.8	5	141	96	95	A
RF-47	11/5/09	N	RFP-4	8.2	132.8	6	132	99	95	A
RF-48	11/5/09	N	RFP-4	8.2	132.8	6	134	101	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-42	N 862351, E 2030563	996.5
RF-43	N 862481, E 2031729	953.5
RF-44	N 862481, E 2031729	953.5
RF-45	N 862424, E 2031136	976.5
RF-46	N 862357, E 2031079	975
RF-47	N 862399, E 2030908	976
RF-48	N 862387, E 2030667	985.5

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Thomas L. Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: November 11, 2009

Project: SC-09-01367B

Report: 8

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-49	11/5/09	N	RFP-5	8.3	133.5	9	136	102	95	A
RF-50	11/6/09	N	RFP-3	7.6	133.8	5	137	102	95	A
RF-51	11/6/09	N	RFP-10	9.5	129.0	9	127	98	95	A
RF-52	11/6/09	N	RFP-10	9.5	129.0	7	129	100	95	A
RF-53	11/6/09	N	RFP-10	9.5	129.0	4	127	98	95	A
RF-54	11/6/09	N	RFP-11	11.7	115.6	7	118	102	95	A
RF-55	11/9/09	N	RFP-3	7.6	133.8	6	136	102	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-49	N 862358, E 2031654	958
RF-50	N 862292, E 2031579	957.5
RF-51	N 862404, E 2030982	979
RF-52	N 862415, E 2031135	978.5
RF-53	N 862350, E 2031177	974
RF-54	N 862337, E 2030938	978
RF-55	N 862357, E 2031957	957.5

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Report of Field Compaction Tests

Date: November 11, 2009 **Project:** SC-09-01367B **Report:** 9

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-56	11/6/09	N	RFP-3	7.6	133.8	5	137	102	95	A
RF-57	11/9/09	N	RFP-10	11.7	115.6	4	115	99	95	A
RF-58	11/9/09	N	RFP-3	7.6	133.8	6	132	99	95	A
RF-59	11/9/09	N	RFP-3	7.6	133.8	6	129	96	95	A
RF-60	11/9/09	N	RFP-3	7.6	133.8	5	136	102	95	A
RF-61	11/9/09	N	RFP-3	11.7	115.6	4	114	99	95	A
RF-62	11/10/09	N	RFP-3	7.6	133.8	4	136	102	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-56	N 862371, E 2031032	978.5
RF-57	N 862376, E 2031139	978
RF-58	N 862319, E 2031226	976
RF-59	N 862345, E 2030947	981
RF-60	N 862521, E 2031559	959.5
RF-61	N 862366, E 2030933	981.5
RF-62	N 862329, E 2030773	987

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Report of Field Compaction Tests

Date: November 11, 2009 **Project:** SC-09-01367B **Report:** 10

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-63	11/10/09	N	RFP-3	7.6	133.8	6	136	102	95	A
RF-64	11/10/09	N	RFP-3	7.6	133.8	5	131	98	95	A
RF-65	11/10/09	N	RFP-10	9.5	129.0	3	124	96	95	A
RF-66	11/10/09	N	RFP-3	7.6	133.8	6	137	102	95	A
RF-67	11/10/09	N	RFP-8	4.7	146.8	5	142	97	95	A
RF-68	11/10/09	N	RFP-11	11.7	115.6	7	118	102	95	A
RF-69	11/10/09	N	RFP-10	9.5	129.0	3	124	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-63	N 862419, E 2031737	959
RF-64	N 862371, E 2030839	986
RF-65	N 862359, E 2030682	987
RF-66	N 862316, E 2031828	958.5
RF-67	N 862336, E 2030807	988
RF-68	N 862429, E 2030696	992
RF-69	N 862458, E 2031549	961

Elevation Reference:

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Thomas L. Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: November 11, 2009 **Project:** SC-09-01367B **Report:** 11

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-70	11/10/09	N	RFP-10	9.5	129.0	5	128	99	95	A
RF-71	11/11/09	N	RFP-1	12.8	113.1	3	110	97	95	A
RF-72	11/11/09	N	RFP-3	7.6	133.8	6	136	102	95	A
RF-73	11/11/09	N	RFP-11	11.7	115.6	10	117	101	95	A
RF-74	11/12/09	N	RFP-3	7.6	133.8	4	131	98	95	A
RF-75	11/12/09	N	RFP-11	11.7	115.6	6	120	104	95	A
RF-76	11/12/09	N	RFP-11	11.7	115.6	4	115	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-70	N 862389, E 2030826	981
RF-71	N 862356, E 2030738	990.5
RF-72	N 862317, E 2031679	961
RF-73	N 862364, E 2030851	986.5
RF-74	N 862346, E 2031452	962.5
RF-75	N 862422, E 2030648	1005
RF-76	N 862370, E 2030665	998.5

Elevation Reference:

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Thomas L. Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: November 16, 2009 **Project:** SC-09-01367B **Report:** 12

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-77	11/13/09	N	RFP-10	9.5	129.0	4	124	96	95	A
RF-78	11/13/09	N	RFP-5	8.3	133.5	5	136	102	95	A
RF-79	11/13/09	N	RFP-5	9.5	129.0	6	123	95	95	A
RF-80	11/13/09	N	RFP-5	8.3	133.5	5	137	102	95	A
RF-81	11/13/09	N	RFP-1	12.8	113.1	3	113	100	95	A
RF-82	11/13/09	N	RFP-8	4.7	146.8	3	140	95	95	A
RF-83	11/13/09	N	RFP-11	11.7	115.6	9	116	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-77	N 862515, E 2031500	963.5
RF-78	N 862385, E 2030608	1010
RF-79	N 862419, E 2030746	994.5
RF-80	N 862366, E 2030782	996.5
RF-81	N 862397, E 2031240	981
RF-82	N 862450, E 2031685	961.5
RF-83	N 862334, E 2031730	962

Elevation Reference:

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Thomas L. Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: November 16, 2009 **Project:** SC-09-01367B **Report:** 13

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-84	11/13/09	N	RFP-11	11.7	115.6	2	117	101	95	A
RF-85	11/16/09	N	RFP-11	11.7	115.6	2	119	103	95	A
RF-86	11/16/09	N	RFP-1	12.8	113.1	3	113	100	95	A
RF-87	11/16/09	N	RFP-1	12.8	113.1	2	110	97	95	A
RF-88	11/16/09	N	RFP-11	11.7	115.6	4	116	100	95	A
RF-89	11/16/09	N	RFP-1	12.8	113.1	3	108	95	95	A
RF-90	11/17/09	N	RFP-10	9.5	129.0	4	128	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-84	N 862341, E 2031358	969
RF-85	N 862425, E 2031706	963
RF-86	N 862398, E 2031444	966
RF-87	N 862361, E 2031321	976
RF-88	N 862330, E 2031878	962.5
RF-89	N 862335, E 2031427	970
RF-90	N 862326, E 2031891	963

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Thomas L. Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: November 18, 2009 **Project:** SC-09-01367B **Report:** 14

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-91	11/17/09	N	RFP-10	9.5	129.0	8	122	95	95	A
RF-92	11/17/09	N	RFP-1	12.8	113.1	4	112	99	95	A
RF-93	1/22/03	N	RFP-18	11.2	116.6	4	112	96	95	A
RF-94	11/18/09	N	RFP-18	11.2	116.6	5	117	100	95	A
RF-95	11/18/09	N	RFP-10	9.5	129.0	6	123	95	95	A
RF-96	11/19/09	N	RFP-15	12.8	109.9	9	110	100	95	A
RF-97	11/19/09	N	RFP-15	12.8	109.9	8	108	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-91	N 862368, E 2031616	964
RF-92	N 862390, E 2031356	977
RF-93	N 862635, E 2031899	950
RF-94	N 862689, E 2031914	953.5
RF-95	N 862342, E 2031418	976
RF-96	N 862455, E 2031530	972
RF-97	N 862382, E 2031474	974

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Project Manager

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Report of Field Compaction Tests

Date: November 23, 2009 **Project:** SC-09-01367B **Report:** 15

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-98	11/19/09	N	RFP-18	11.2	116.6	4	116	99	95	A
RF-99	11/19/09	N	RFP-18	11.2	116.6	4	112	96	95	A
RF-100	11/20/09	N	RFP-18	11.2	116.6	8	115	99	95	A
RF-101	11/20/09	N	RFP-18	11.2	116.6	3	113	97	95	A
RF-102	11/20/09	N	RFP-18	11.2	116.6	3	115	99	95	A
RF-103	11/20/09	N	RFP-14	13.2	108.8	3	104	96	95	A
RF-104	11/23/09	N	RFP-18	11.2	116.6	6	112	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-98	N 862417, E 2031459	974
RF-99	N 862346, E 2031441	981.5
RF-100	N 862388, E 2031382	984
RF-101	N 862432, E 2031476	979
RF-102	N 862385, E 2031534	984
RF-103	N 862347, E 2031592	974
RF-104	N 862367, E 2031513	982

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Report of Field Compaction Tests

Date: November 25, 2009 **Project:** SC-09-01367B **Report:** 16

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-105	11/23/09	N	RFP-18	11.2	116.6	9	112	96	95	A
RF-106	11/23/09	N	RFP-18	11.2	116.6	3	113	97	95	A
RF-107	11/23/09	N	RFP-18	11.2	116.6	5	115	99	95	A
RF-108	11/23/09	N	RFP-18	11.2	116.6	4	113	97	95	A
RF-109	11/24/09	N	RFP-18	11.2	116.6	4	118	101	95	A
RF-110	11/24/09	N	RFP-16	8.0	127.7	8	130	102	95	A
RF-111	11/24/09	N	RFP-16	8.0	127.7	11	128	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-105	N 862367, E 2031513	974
RF-106	N 862381, E 2031651	984
RF-107	N 862435, E 2031650	979
RF-108	N 862333, E 2031820	970
RF-109	N 862380, E 2031745	976 1/2
RF-110	N 862395, E 2031835	970
RF-111	N 862356, E 2031915	963

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Random Fill In-place Density Test Reports (2010 construction)

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Report of Field Compaction Tests

Date: April 21, 2010 **Project:** SC-09-01367B **Report:** 17

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-112	4/12/10	N	RFP-6	13.2	110.8	9	108	97	95	A
RF-113	4/12/10	N	RFP-7	11.2	116.6	4	113	97	95	A
RF-114	4/12/10	N	RFP-6	13.2	110.8	5	106	96	95	A
RF-115	4/12/10	N	RFP-7	11.2	116.8	4	112	96	95	A
RF-116	4/12/10	N	RFP-7	11.2	116.8	5	113	96	95	A
RF-117	4/13/10	N	RFP-18	11.2	116.6	6	111	95	95	A
RF-118	4/13/10	N	RFP-13	13.1	107.5	6	104	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-112	N 863571, E 2031818	952.5
RF-113	N 863426, E 2031879	953.5
RF-114	N 863309, E 2031906	951
RF-115	N 863053, E 2031925	951.5
RF-116	N 862818, E 2031814	948.5
RF-117	N 862839, E 2031938	953.5
RF-118	N 862903, E 2031852	952

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Project Manager

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Report of Field Compaction Tests

Date: April 21, 2010 **Project:** SC-09-01367B **Report:** 18

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-119	4/13/10	N	RFP-18	11.2	116.6	5	112	96	95	A
RF-120	4/13/10	N	RFP-18	11.2	116.6	8	111	95	95	A
RF-121	4/13/10	N	RFP-17	13.2	110.8	7	108	98	95	A
RF-122	4/13/10	N	RFP-18	11.2	116.6	3	111	95	95	A
RF-123	4/14/10	N	RFP-17	13.2	110.8	8	109	99	95	A
RF-124	4/14/10	N	RFP-17	13.2	110.8	7	109	99	95	A
RF-125	4/14/10	N	RFP-17	13.2	110.8	6	110	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-119	N 862980, E 2031893	953
RF-120	N 863108, E 2031818	952.5
RF-121	N 863428, E 2031878	953.5
RF-122	N 863288, E 2031950	955.5
RF-123	N 862925, E 2031966	958
RF-124	N 862777, E 2031915	956.5
RF-125	N 862973, E 2031854	956

Elevation Reference:

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Thomas L. Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: April 21, 2010 **Project:** SC-09-01367B **Report:** 19

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-126	4/14/10	N	RFP-15	12.8	109.9	7	104	95	95	A
RF-127	4/15/10	N	RFP-17	13.2	110.8	4	110	99	95	A
RF-128	4/15/10	N	RFP-12	14.5	106.2	4	104	97	95	A
RF-129	4/15/10	N	RFP-17	13.2	110.8	6	109	99	95	A
RF-130	4/15/10	N	RFP-18	11.2	116.6	6	113	97	95	A
RF-131	4/15/10	N	RFP-18	11.2	116.6	4	116	100	95	A
RF-132	4/15/10	N	RFP-18	11.2	116.6	9	114	97	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-126	N 863258, E 2031892	957.5
RF-127	N 862568, E 2031838	948
RF-128	N 862859, E 2031839	960.5
RF-129	N 863021, E 2031823	960
RF-130	N 863187, E 2031905	960
RF-131	N 863057, E 2032036	958
RF-132	N 862741, E 2031947	960

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Thomas L. Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: April 21, 2010 **Project:** SC-09-01367B **Report:** 20

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-133	4/19/10	N	RFP-18	11.2	116.6	6	114	98	95	A
RF-134	4/19/10	N	RFP-18	11.2	116.6	6	114	98	95	A
RF-135	4/19/10	N	RFP-18	11.2	116.6	8	111	95	95	A
RF-136	4/19/10	N	RFP-18	11.2	116.6	5	117	100	95	A
RF-137	4/19/10	N	RFP-18	11.2	116.6	6	115	98	95	A
RF-138	4/19/10	N	RFP-18	11.2	116.6	6	119	102	95	A
RF-139	4/19/10	N	RFP-18	11.2	116.6	6	118	101	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-133	N 862492, E 2031907	956.5
RF-134	N 862723, E 2031926	961
RF-135	N 862931, E 2031866	962
RF-136	N 863153, E 2031925	961.5
RF-137	N 863276, E 2031883	963
RF-138	N 863124, E 2031927	964
RF-139	N 862904, E 2031912	965

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Report of Field Compaction Tests

Date: April 21, 2010 **Project:** SC-09-01367B **Report:** 21

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-140	4/20/10	N	RFP-18	11.2	116.6	6	118	101	95	A
RF-141	4/20/10	N	RFP-15	12.8	109.9	4	109	99	95	A
RF-142	4/20/10	N	RFP-15	12.8	109.9	10	108	98	95	A
RF-143	4/20/10	N	RFP-15	12.8	109.9	5	109	99	95	A
RF-144	4/21/10	N	RFP-18	11.2	116.6	10	112	96	95	A
RF-145	4/21/10	N	RFP-17	13.2	110.8	7	110	99	95	A
RF-146	4/21/10	N	RFP-17	13.2	110.8	4	105	95	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-140	N 862692, E 2031879	964
RF-141	N 862557, E 2031799	963
RF-142	N 862519, E 2031696	964
RF-143	N 862467, E 2031888	962.5
RF-144	N 862378, E 2031843	974.5
RF-145	N 862364, E 2031933	967
RF-146	N 862663, E 2031942	963

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Report of Field Compaction Tests

Date: April 21, 2010 **Project:** SC-09-01367B **Report:** 22

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-147	4/21/10	N	RFP-17	13.2	110.8	5	106	95	95	A
RF-148	4/21/10	N	RFP-18	11.2	116.6	6	117	100	95	A
RF-149	4/21/10	N	RFP-18	11.2	116.6	7	111	95	95	A
RF-150	4/22/10	N	RFP-18	11.2	116.6	6	113	97	95	A
RF-151	4/22/10	N	RFP-18	11.2	116.6	6	113	97	95	A
RF-152	4/22/10	N	RFP-18	12.8	109.9	5	107	98	95	A
RF-153	4/22/10	N	RFP-18	12.8	109.9	5	105	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-147	N 862597, E 2031853	965
RF-148	N 862818, E 2032003	962
RF-149	N 863022, E 2032059	961
RF-150	N 862582, E 2032060	963.5
RF-151	N 862499, E 2032008	964
RF-152	N 862633, E 2031949	968
RF-153	N 862708, E 2032005	968

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: April 23, 2010 **Project:** SC-09-01367B **Report:** 23

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-154	4/22/10	N	RFP-18	8.0	127.7	8	122	95	95	A
RF-155	4/22/10	N	RFP-18	11.2	116.6	7	115	98	95	A
RF-156	4/23/10	N	RFP-18	11.2	116.6	4	112	96	95	A
RF-157	4/23/10	N	RFP-18	11.2	116.6	3	117	101	95	A
RF-158	4/23/10	N	RFP-18	11.2	116.6	4	117	100	95	A
RF-159	4/23/10	N	RFP-18	11.2	116.6	4	112	96	95	A
RF-160	4/23/10	N	RFP-16	8.0	127.7	5	124	97	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-154	N 862789, E 2032058	964
RF-155	N 862707, E 2032096	963
RF-156	N 862977, E 2032067	962.5
RF-157	N 862794, E 2032039	966
RF-158	N 862568, E 2032028	968.5
RF-159	N 862419, E 2031968	969.5
RF-160	N 862576, E 2032093	959.5

Elevation Reference:

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Project Manager

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Report of Field Compaction Tests

Date: May 24, 2010 **Project:** SC-09-01367B **Report:** 24

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-161	4/23/10	N	RFP-16: SP	8.0	127.7	6.0	122.3	96	95	A
RF-162	4/26/10	N	RFP-16: SP	8.0	127.7	8.7	129.8	102	95	A
RF-163	4/26/10	N	RFP-16: SP	8.0	127.7	5.3	122.7	96	95	A
RF-164	4/26/10	N	RFP-18: SP	11.2	116.6	3.3	114.4	98	95	A
RF-165	4/26/10	N	RFP-18: SP	11.2	116.6	5.3	116.6	100	95	A
RF-166	4/26/10	N	RFP-13: SP	13.9	107.5	12.2	102.3	95	95	A
RF-167	4/27/10	N	RFP-18: SP	11.2	116.6	2.9	118.0	101	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-161	N 862787, E 2032111	960.5
RF-162	N 862819, E 2032121	963
RF-163	N 862650, E 2032099	964.5
RF-164	N 862486, E 2032066	964.5
RF-165	N 862344, E 2032051	963
RF-166	N 862410, E 2031955	971.5
RF-167	N 862473, E 2031957	976

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Report of Field Compaction Tests

Date: May 24, 2010 **Project:** SC-09-01367B **Report:** 25

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-168	4/27/10	N	RFP-16: SP	8.0	127.7	3.2	125.6	98	95	A
RF-169	4/27/10	N	RFP-18: SP	11.2	116.6	6.5	110.6	95	95	A
RF-170	4/27/10	N	RFP-18: SP	11.2	116.6	9.7	114.0	98	95	A
RF-171	4/27/10	N	RFP-18: SP	11.2	116.6	6.5	112.6	97	95	A
RF-172	4/27/10	N	RFP-18: SP	11.2	116.6	4.8	119.0	102	95	A
RF-173	4/28/10	N	RFP-17: SP	13.2	110.8	5.1	108.1	98	95	A
RF-174	4/28/10	N	RFP-18: SP	11.2	116.6	3.3	113.1	97	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-168	N 862579, E 2032009	972.5
RF-169	N 862735, E 2031987	973.5
RF-170	N 862731, E 2032088	968.5
RF-171	N 862448, E 2032059	972
RF-172	N 862386, E 2031958	974.5
RF-173	N 862768, E 2031991	978
RF-174	N 862515, E 2031963	979

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Report of Field Compaction Tests

Date: May 24, 2010 **Project:** SC-09-01367B **Report:** 26

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-175	4/28/10	N	RFP-16: SP	8.0	127.7	6.7	124.9	98	95	A
RF-176	4/28/10	N	RFP-18: SP	11.2	116.6	4.0	119.6	103	95	A
RF-177	4/28/10	N	RFP-17: SP	13.2	110.8	4.1	110.1	99	95	A
RF-178	4/28/10	N	RFP-18: SP	11.2	116.6	7.2	113.8	98	95	A
RF-179	4/28/10	N	RFP-18: SP	11.2	116.6	3.5	112.4	96	95	A
RF-180	4/28/10	N	RFP-18: SP	11.2	116.6	3.5	115.6	99	95	A
RF-181	4/28/10	N	RFP-18: SP	11.2	116.6	3.4	120.4	103	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-175	N 862435, E 2031754	979
RF-176	N 862422, E 2031833	981.5
RF-177	N 862615, E 2032103	973
RF-178	N 862931, E 2032009	975.5
RF-179	N 863057, E 2032026	972.5
RF-180	N 862640, E 2032032	982
RF-181	N 862817, E 2032049	981.5

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Report of Field Compaction Tests

Date: May 24, 2010 **Project:** SC-09-01367B **Report:** 27

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-182	4/29/10	N	RFP-18: SP	13.2	110.8	5.9	107.2	97	95	A
RF-183	4/29/10	N	RFP-18: SP	11.2	116.6	4.0	114.0	98	95	A
RF-184	4/29/10	N	RFP-18: SP	11.2	116.6	4.5	118.2	101	95	A
RF-185	4/29/10	N	RFP-18: SP	11.2	116.6	11.8	117.3	101	95	A
RF-186	4/29/10	N	RFP-18: SP	11.2	116.6	7.0	115.9	99	95	A
RF-187	4/29/10	N	RFP-16: SP	8.0	127.7	4.5	122.2	96	95	A
RF-188	4/29/10	N	RFP-18: SP	11.2	116.6	4.0	119.1	102	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
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C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-182	N 863028, E 2032006	979
RF-183	N 862919, E 2032030	984
RF-184	N 862445, E 2032015	982
RF-185	N 862641, E 2032070	975.5
RF-186	N 862855, E 2032125	966.5
RF-187	N 862691, E 2032031	984
RF-188	N 862912, E 2032049	984

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Report of Field Compaction Tests

Date: May 24, 2010 **Project:** SC-09-01367B **Report:** 28

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-189	5/3/10	N	RFP-18: SP	11.2	116.6	2.5	115.3	99	95	A
RF-190	5/19/10	N	RFP-18: SP	11.2	127.7	5.2	122.2	96	95	A
RF-191	6/8/10	N	RFP-18: SP	11.2	116.6	4.0	119.0	102	95	A
RF-192	6/8/10	N	RFP-18: SP	11.2	116.6	3.0	115.7	99	95	A
RF-193	6/8/10	N	RFP-18: SP	11.2	116.6	7.0	116.5	100	95	A
RF-194	6/8/10	N	RFP-17: SP	13.2	110.8	3.0	109.5	99	95	A
RF-195	6/8/10	N	RFP-18: SP	11.2	116.6	7.0	117.0	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-189	N 862767, E 2032065	984
RF-190	N 862449, E 2031967	984
RF-191	N 863393, E 2031940	966
RF-192	N 863276, E 2032033	963
RF-193	N 863208, E 2032096	962
RF-194	N 863305, E 2031969	965
RF-195	N 863208, E 2032096	964

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Report of Field Compaction Tests

Date: June 15, 2010 **Project:** SC-09-01367B **Report:** 29

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-196	6/9/10	N	RFP-18: SP	11.2	116.6	5.1	114.5	98	95	A
RF-197	6/9/10	N	RFP-18: SP	13.2	110.8	3.5	109.0	98	95	A
RF-198	6/9/10	N	RFP-18: SP	11.2	116.6	3.5	115.0	99	95	A
RF-199	6/9/10	N	RFP-18: SP	11.2	116.6	3.0	116.6	100	95	A
RF-200	6/14/10	N	RFP-18: SP	11.2	116.6	3.1	119.1	102	95	A
RF-201	6/14/10	N	RFP-17: SP	13.2	110.8	5.7	109.8	99	95	A
RF-202	6/14/10	N	RFP-17: SP	13.2	110.3	14.8	110.3	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-196	N 863326, E 2031949	966 1/2
RF-197	N 863412, E 2031916	961 1/2
RF-198	N 863359, E 2032031	969
RF-199	N863409, E 2031878	965 1/2
RF-200	N 863199, E 2032029	972
RF-201	N 863354, E 2031990	970
RF-202	N 863564, E 2031870	959

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Report of Field Compaction Tests

Date: June 15, 2010 **Project:** SC-09-01367B **Report:** 30

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-203	6/14/10	N	RFP-17: SP	13.2	110.8	9.4	108.2	98	95	A
RF-204	6/14/10	N	RFP-18: SP	11.2	116.6	3.9	113.8	98	95	A
RF-205	6/14/10	N	RFP-18: SP	13.2	110.8	3.4	108.6	98	95	A
RF-206	6/15/10	N	RFP-17: SP	13.2	110.8	4.9	108.8	98	95	A
RF-207	6/15/10	N	RFP-18: SP	11.2	116.6	4.3	114.5	98	95	A
RF-208	6/15/10	N	RFP-17: SP	13.2	110.8	4.0	106.4	96	95	A
RF-209	6/15/10	N	RFP-17: SP	13.2	110.8	3.7	109.1	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-203	N 863480, E 2031848	959
RF-204	N 863557, E 2031854	965
RF-205	N 863471, E 2031857	965
RF-206	N 863423, E 2031992	975 1/2
RF-207	N 863316, E 2032036	974 1/2
RF-208	N 863138, E 2031993	977
RF-209	N 863202, E 2032102	975

Elevation Reference:

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Report of Field Compaction Tests

Date: June 22, 2010 **Project:** SC-09-01367B **Report:** 31

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-210	6/16/10	N	RFP-17: SP	13.2	110.8	3.4	109.5	99	95	A
RF-211	6/16/10	N	RFP-17: SP	13.2	110.8	4.1	106.5	96	95	A
RF-212	6/16/10	N	RFP-17: SP	13.2	110.8	4.4	108.2	98	95	A
RF-213	6/17/10	N	RFP-18: SP	11.2	116.6	3.5	113.7	98	95	A
RF-214	6/17/10	N	RFP-18: SP	11.2	116.6	4.1	113.7	98	95	A
RF-215	8/6/10	N	RFP-14: SP	13.2	108.8	3.0	106.6	98	95	A
RF-216	8/6/10	N	RFP-18: SP	8.0	116.6	4.0	114.2	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-210	N 863439, E 2032025	984
RF-211	N 863261, E 2032068	981.5
RF-212	N 863197, E 2032056	979
RF-213	N 863505, E 2032027	987
RF-214	N 863302, E 2032064	984
RF-215	N 862941, E 2032059	986
RF-216	N 862399, E 2031630	985

Elevation Reference:

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Report of Field Compaction Tests

Date: November 10, 2010 **Project:** SC-09-01367B **Report:** 32

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-217	8/6/10	N	RFP-14: SP	13.2	108.8	4.0	108.8	100	95	A
RF-218	10/27/10	N	RFP-18	11.2	116.6	4.8	113.5	97	95	A
RF-219	10/27/10	N	RFP-18	11.2	116.6	3.2	116.6	100	95	A
RF-220	10/27/10	N	RFP-16	8.0	127.7	4.7	124.8	98	95	A
RF-221	10/27/10	N	RFP-18	11.2	116.6	3.8	119.3	102	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-217	N 862367, E 203113	986.5
RF-218	N 863399, E 2031960	984
RF-219	N 863464, E 2031941	981
RF-220	N 863654, E 2031908	979.5
RF-221	N 863358, E 2031928	981.5

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

Clay Test Reports

Clay Prequalification Test Reports
Clay Standard Proctor Test Reports
Clay In-place Density Test Reports
Clay In-place Permeability and Index Test Reports

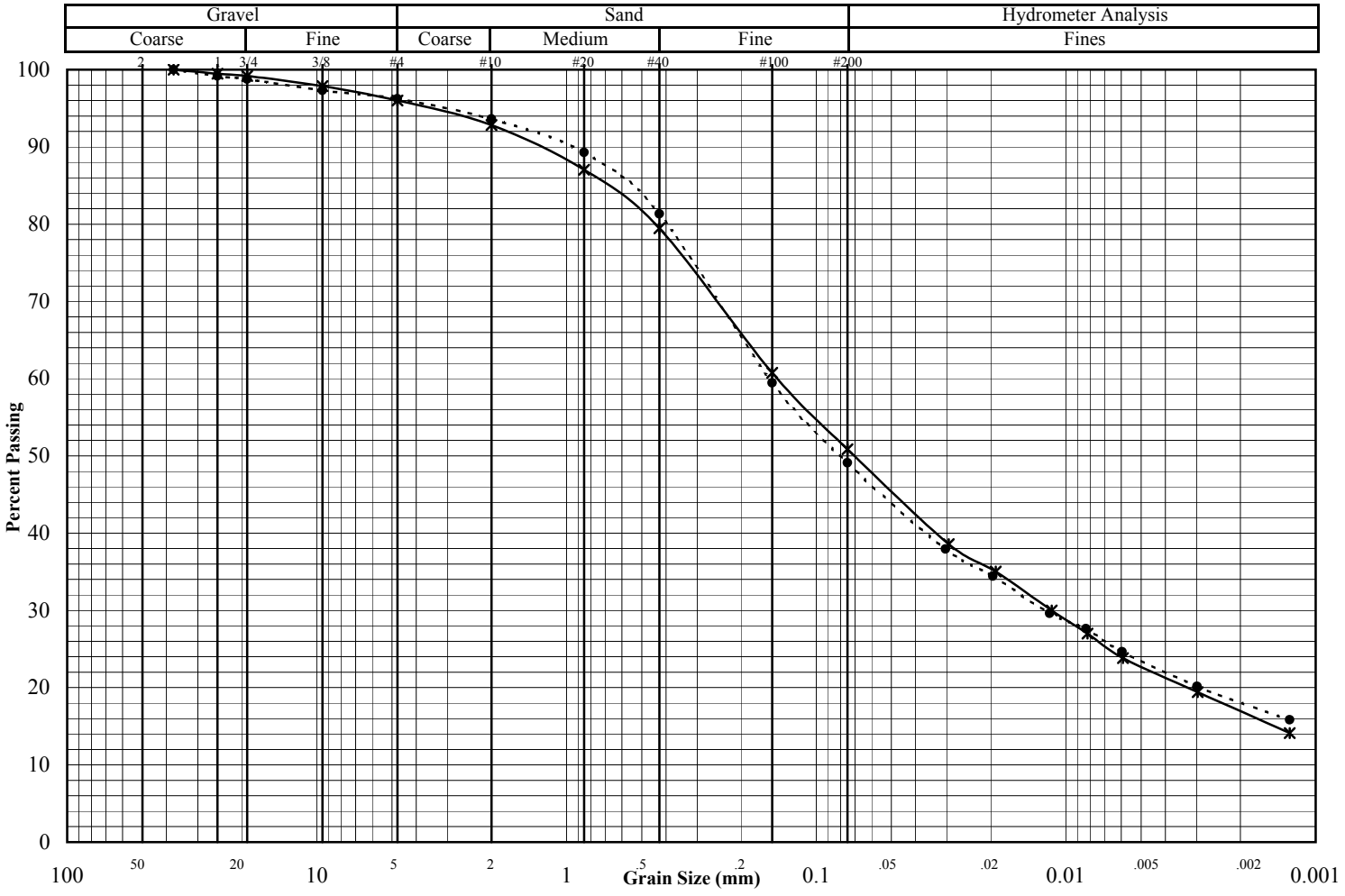
Clay Prequalification Test Reports

Grain Size Distribution ASTM D422

Job No. : **7435**

Project:	Sherco Pond 3S	Test Date:	4/24/10
Reported To:	McCain & Associates, Inc.	Report Date:	4/28/10

	Location / Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Classification
*		CLS-1		Bag	Sandy Lean Clay with a trace of gravel (CL/SC)
●		CLS-2		Bag	Clayey Sand with a trace of gravel (SC/CL)
◇					



Other Tests	*	●	◇
Liquid Limit	31.8	33.7	
Plastic Limit	14.6	15.1	
Plasticity Index	17.2	18.6	
Water Content	16.2	18.2	
Dry Density (pcf)			
Specific Gravity	2.69*	2.69*	
Porosity			
Organic Content			
pH			
Shrinkage Limit			
Penetrometer			
Qu (psf)			

(* = assumed)

Percent Passing	*	●	◇
Mass (g)	22651.0	37264.0	
2"			
1.5"	100.0	100.0	
1"	99.5	99.2	
3/4"	99.2	98.8	
3/8"	97.9	97.3	
#4	96.0	96.2	
#10	92.8	93.6	
#20	87.0	89.3	
#40	79.5	81.3	
#100	60.7	59.4	
#200	50.9	49.1	

	*	●	◇
D_{60}			
D_{30}			
D_{10}			
C_U			
C_C			

Remarks:

9301 Bryant Ave. South, Suite 107

SOIL ENGINEERING TESTING, INC.

Bloomington, Minnesota 55420-3436

Moisture Density Curve ASTM: D698, Method B

Project: **Sherco Pond 3S** Date: **4/26/10**

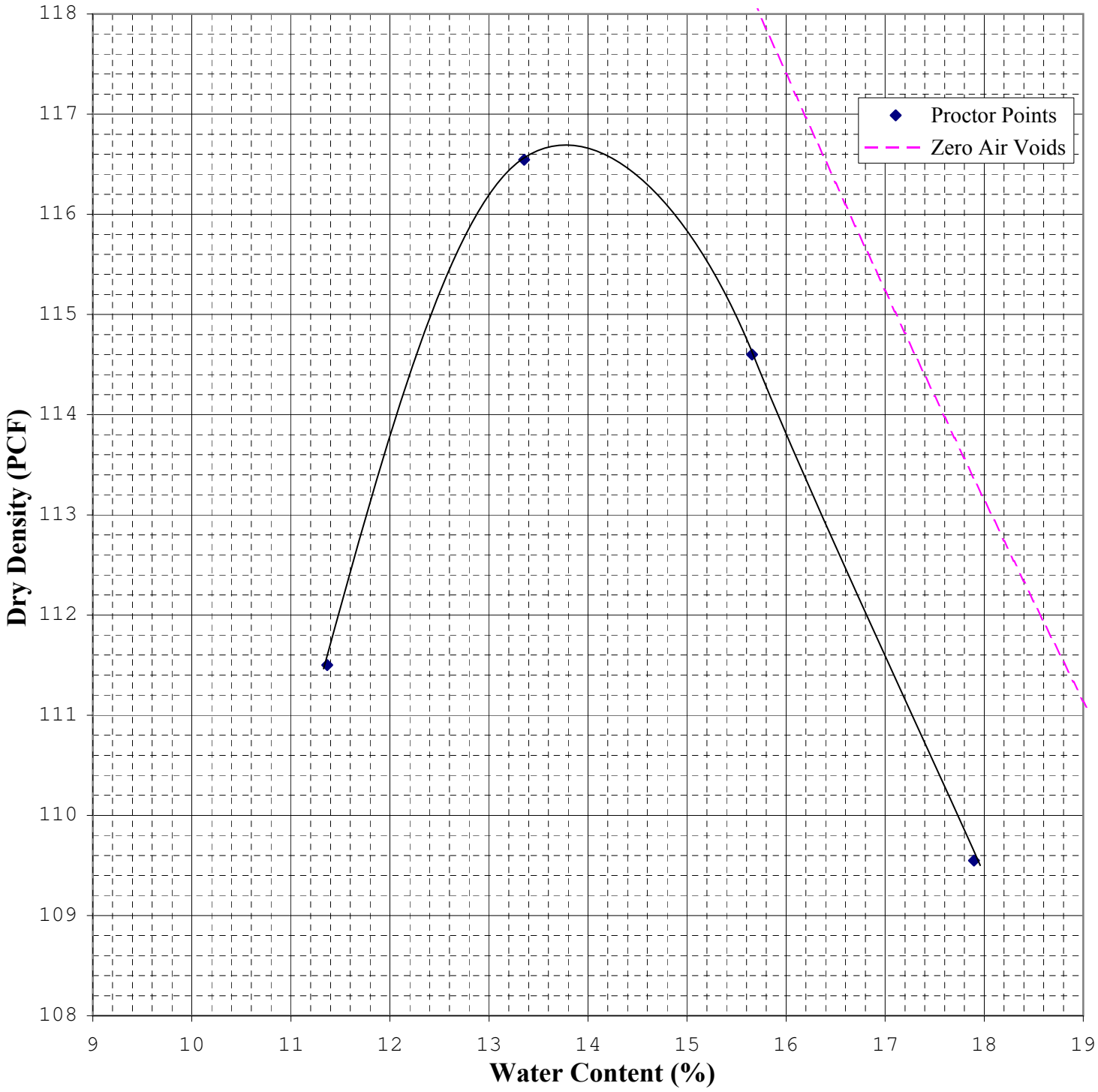
Client: **McCain & Associates, Inc.** Job No. **7435**

Boring No. Sample: **CLS-1** Depth(ft): Location:

Soil Type: **Sandy Lean Clay with a trace of gravel (CL/SC)**

As Received W.C. (%): **16.2** LL: **31.8** PL: **14.6** PI: **17.2** Specific Gravity: **2.69** *Assumed

Maximum Dry Density (pcf): **116.7** Opt. Water Content (%): **13.8**



9301 Bryant Ave. South, Suite 107

SOIL ENGINEERING TESTING, INC.

Bloomington, Minnesota 55420-3436

SET-R18a

Moisture Density Curve ASTM: D698, Method B

Project: **Sherco Pond 3S** Date: **4/26/10**

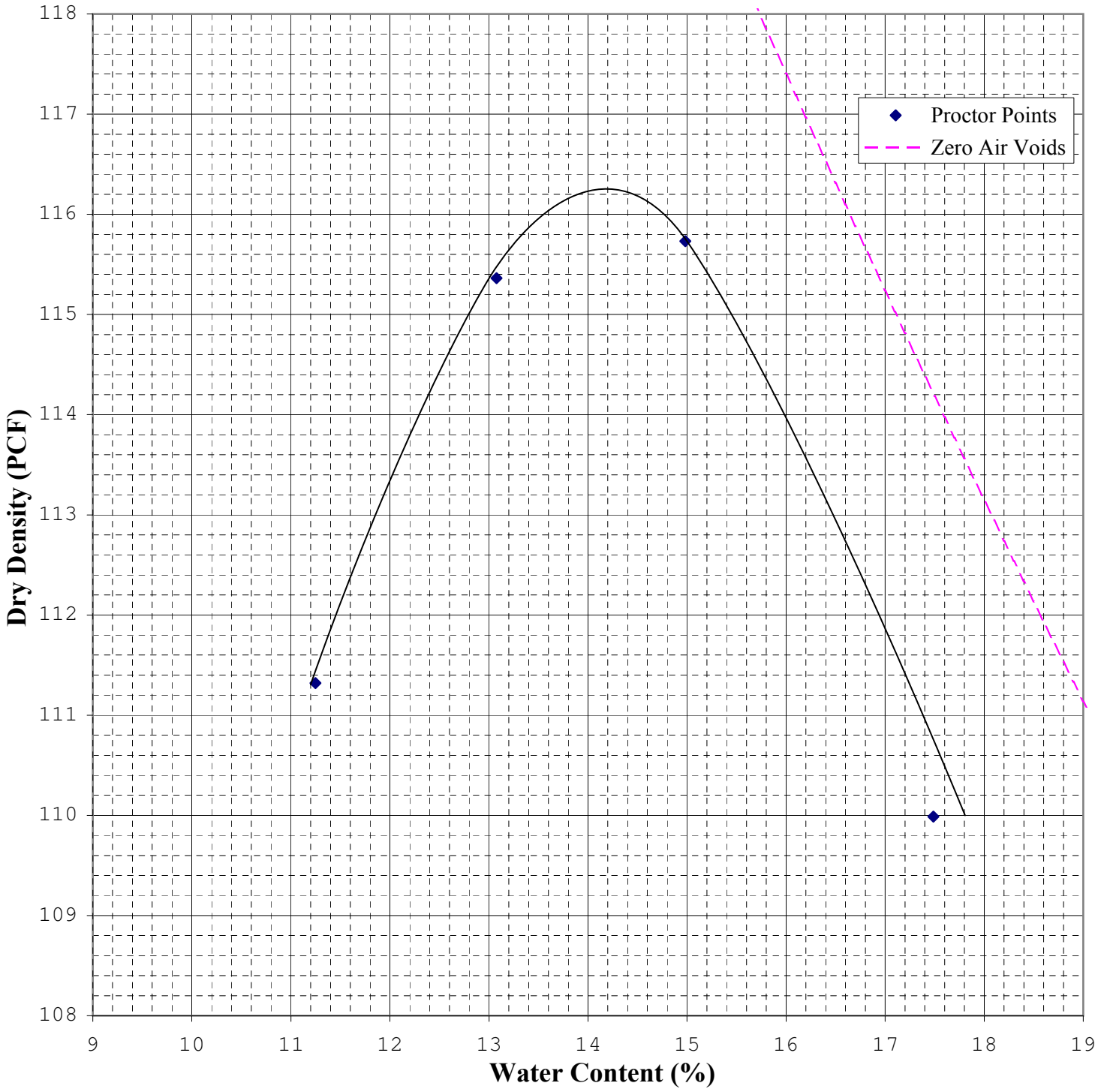
Client: **McCain & Associates, Inc.** Job No. **7435**

Boring No. Sample: **CLS-2** Depth(ft): Location:

Soil Type: **Clayey Sand with a trace of gravel (SC/CL)**

As Received W.C. (%): **18.2** LL: **33.7** PL: **15.1** PI: **18.6** Specific Gravity: **2.69** *Assumed

Maximum Dry Density (pcf): **116.3** Opt. Water Content (%): **14.2**



9301 Bryant Ave. South, Suite 107

SOIL ENGINEERING TESTING, INC.

Bloomington, Minnesota 55420-3436

SET-R18a

Hydraulic Conductivity Test Data

Project: Sherco Pond 3S Date: 5/13/2010

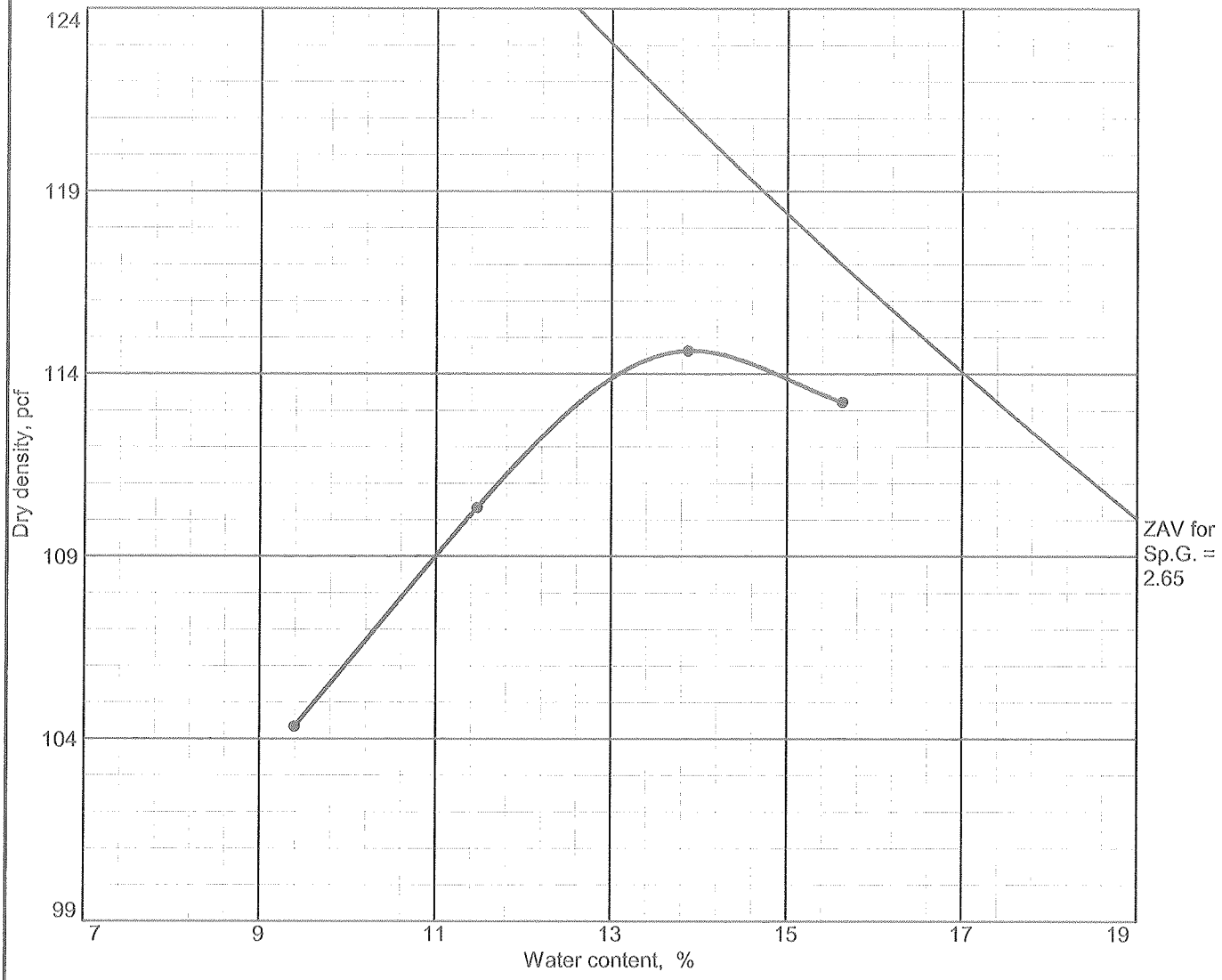
Reported To: McCain & Associates, Inc. Job No.: 7435

Boring No.:	CLS-1	CLS-2					
Sample No.:							
Depth (ft)							
Location:							
Sample Type:	Bulk	Bulk					
Soil Type:	Sandy Lean Clay w/a trace of gravel (CL/SC)	Clayey Sand w/a trace of gravel (SC/CL)					
Atterberg Limits							
LL	31.8	33.7					
PL	14.6	15.1					
PI	17.2	18.6					
Permeability Test	Reconstituted	Reconstituted					
Before Test Conditions: Saturation %:							
Porosity:							
Ht. (in):	3.00	3.00					
Dia. (in):	2.86	2.86					
Dry Density (pcf):	113.1	112.6					
Water Content:	13.7%	14.3%					
Test Type:	Falling	Falling					
Max Head (ft):	5.0	5.0					
Confining press. (Effective-psi):	2.0	2.0					
Trial No.:	9-13	6-10					
Water Temp °C:	22.0	22.0					
% Compaction	96.9%	96.8%					
% Saturation (After Test)	95.0%	95.1%					
Coefficient of Permeability							
K @ 20 °C (cm/sec)	**4.7×10^{-8}**	**6.8×10^{-8}**					
K @ 20 °C (ft/min)	**9.2×10^{-8}**	**1.3×10^{-7}**					
Notes:							

9301 Bryant Ave. South Suite 107 SOIL ENGINEERING TESTING, INC. Bloomington, Minnesota 55420-3436

Clay Standard Proctor Test Reports

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	CL			2.65			3.0	

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 114.6 pcf Optimum moisture = 13.9 %	Sandy Lean Clay, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

Project: Pond 3 South Construction

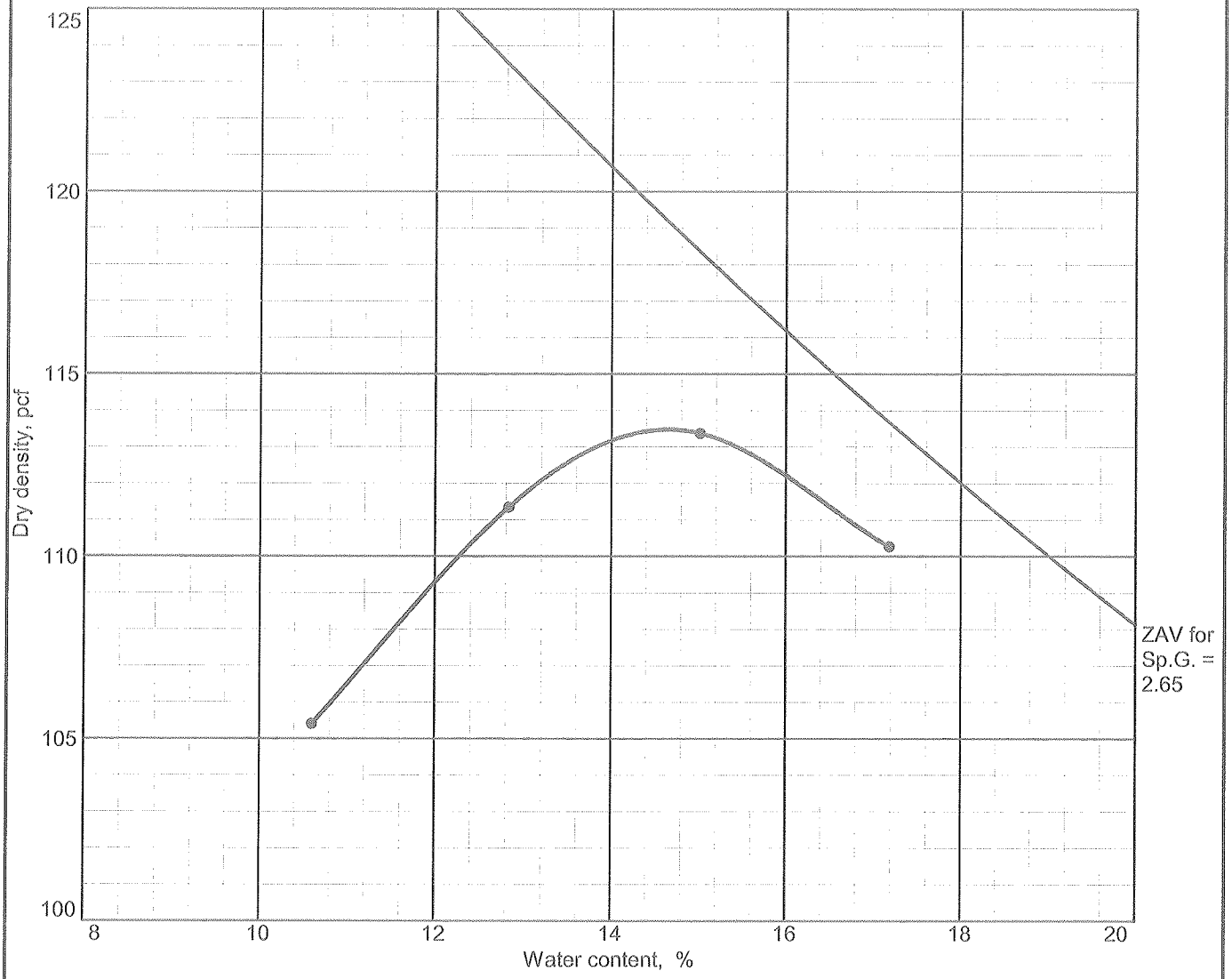
Source: **Sample No.:** P-20 (CLP-1)

Remarks:

Specific Gravity was assumed
Clay Borrow Pit
4/23/10

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
				2.65			4.0	

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 113.5 pcf Optimum moisture = 14.6 %	Sandy Lean Clay, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

Project: Pond 3 South Construction

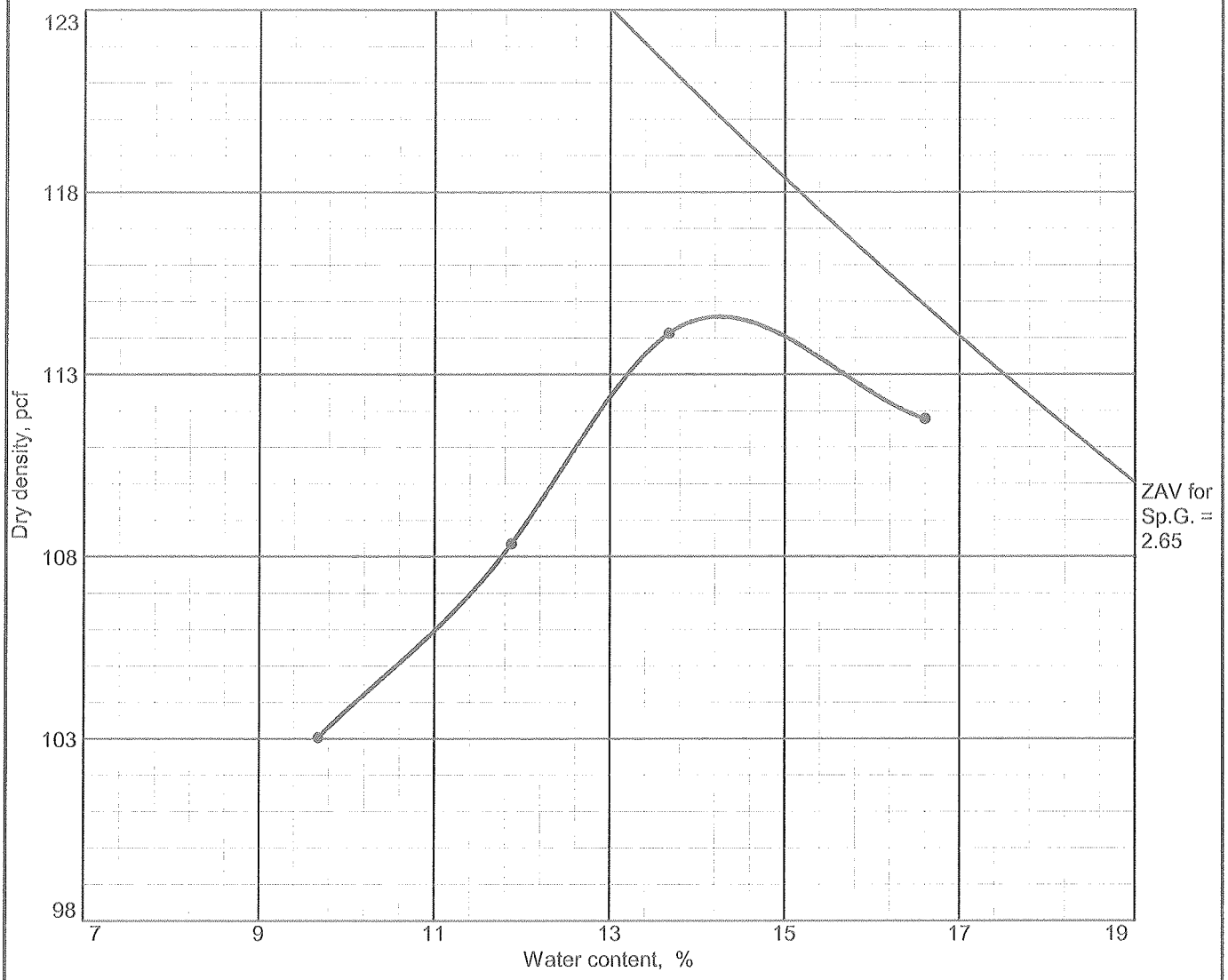
● **Source:** **Sample No.:** P-21 (CLP-2)

Remarks:

Specific Gravity was assumed.
Clay Borrow Pit
4/23/10

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	CL			2.65			4	

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 114.6 pcf Optimum moisture = 14.2 %	Sandy Lean Clay, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

Project: Pond 3 South Construction

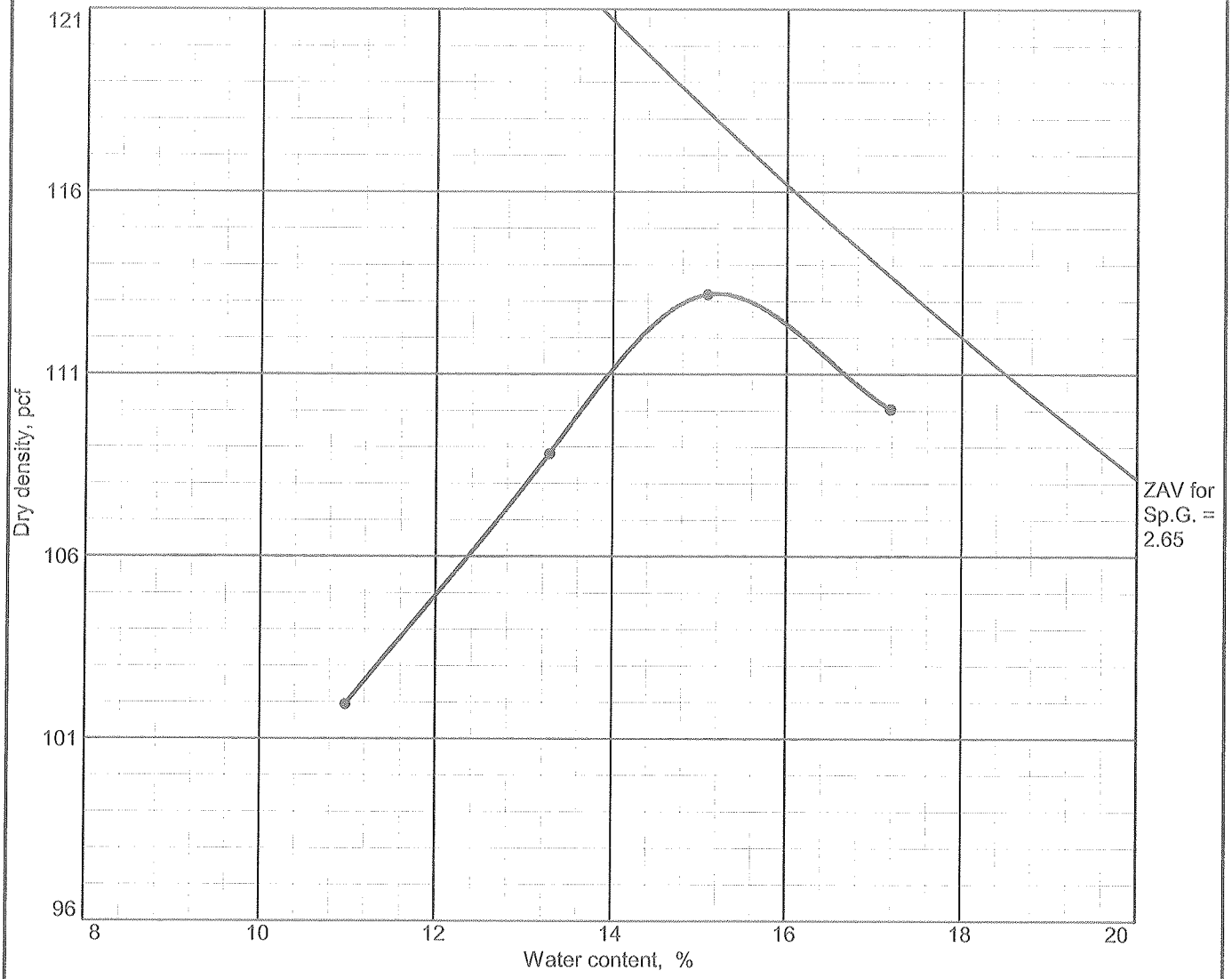
● **Source:** **Sample No.:** P-22 (CLP-3)

Remarks:

Specific Gravity was assumed
Clay Borrow Pit
4/23/10

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	CL			2.65			3.0	

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 113.2 pcf Optimum moisture = 15.2 %	Sandy Lean Clay, brown

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

Project: Pond 3 South Construction

● **Source:** **Sample No.:** P-23 (CLP-4)

Remarks:

Specific Gravity was assumed
Clay Borrow Pit
4/23/10

BRAUN INTERTEC

Clay In-place Density Test Reports

BRAUN INTERTEC

Braun Intertec Corporation
3900 Roosevelt Road
Suite 113
Saint Cloud, MN 56301

Phone: 320.253.9940
Fax: 320.253.3054
Web: brauninterlec.com

Report of Field Compaction Tests

Date: May 24, 2010 **Project:** SC-09-01367B **Report:** 1

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-1	5/17/10	N	CLP-1 CLS	13.9	114.6	13.0	116.0	101	99	A
CL-2	5/17/10	N	CLP-1 CLS	13.9	114.6	14.2	116.4	102	99	A
CL-1A	5/17/10	N	CLP-1 CLS	13.9	114.6	14.0	115.0	100	99	A
CL-3	5/17/10	N	CLP-1 CLS	13.9	114.6	14.8	113.1	99	99	A
CL-4	5/17/10	N	CLP-1 CLS	13.9	114.6	13.9	116.4	102	99	A
CL-5	5/17/10	N	CLP-1 CLS	13.9	114.6	13.9	114.5	100	99	A
CL-6	5/17/10	N	CLP-1 CLS	13.9	114.6	14.3	113.2	99	99	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-1	N 862415, E 2030753	994.5
CL-2	N 862424, ED 2031421	979
CL-1A	Retest of CL-1	994.5
CL-3	N 862409, E 2030848	987.5
CL-4	N 862421, E 230693	1000.5
CL-5	N 862416, E 2030663	1003.5
CL-6	N 862408, E 2030774	995.5

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

BRAUN INTERTEC

Braun Intertec Corporation
3900 Roosevelt Road
Suite 113
Saint Cloud, MN 56301

Phone: 320.253.9940
Fax: 320.253.3054
Web: braunintertec.com

Report of Field Compaction Tests

Date: May 24, 2010 **Project:** SC-09-01367B **Report:** 2

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-7	5/17/10	N	CLP-1 CLS	13.9	114.6	14.6	108.1	94	99	B
CL-7A	5/17/10	N	CLP-1 CLS	13.9	114.6	14.8	113.2	99	99	A
CL-8	5/17/10	N	CLP-1 CLS	13.9	114.6	15.3	113.2	99	99	A
CL-9	5/17/10	N	CLP-1 CLS	13.9	114.6	14.9	114.3	100	99	A
CL-10	5/17/10	N	CLP-1 CLS	13.9	114.6	15.8	113.8	99	99	A
CL-11	5/17/10	N	CLP-1 CLS	13.9	114.6	15.7	113.6	99	99	A
CL-12	5/17/10	N	CLP-1 CLS	13.9	114.6	14.9	112.0	98	99	B

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-7	N 862409, E 2030739	999
CL-7A	Retest of CL-7	999
CL-8	N 862400, E 2030964	980.5
CL-9	N 862404, E 2031031	981
CL-10	N 862378, E 2031013	984
CL-11	N 862405, E 2031123	982
CL-12	N 862394, E 2030937	984

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

BRAUN INTERTEC

Braun Intertec Corporation
3900 Roosevelt Road
Suite 113
Saint Cloud, MN 56301

Phone: 320.253.9940
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Web: braunintertec.com

Report of Field Compaction Tests

Date: May 24, 2010

Project: SC-09-01367B

Report: 3

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-12A	5/17/10	N	CLP-1 CLS	13.9	114.6	14.2	114.1	100	99	A
CL-13	5/17/10	N	CLP-1 CLS	13.9	114.6	14.2	115.4	101	99	A
CL-14	5/17/10	N	CLP-1 CLS	13.9	114.6	14.6	111.1	97	99	B
CL-14A	5/176	N	CLP-1 CLS	13.9	114.6	15.3	113.4	99	99	A
CL-15	5/18/10	N	CLP-1 CLS	13.9	114.6	15.0	113.0	99	99	A
CL-16	5/18/10	N	CLP-1 CLS	13.9	114.6	14.5	114.5	100	99	A
CL-17	5/18/10	N	CLP-1 CLS	13.9	114.6	14.5	116.7	102	99	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-12A	Retest of CL-12	984
CL-13	N 862412, E 2031229	980
CL-14	N 862409, E 2031213	982
CL-14A	Retest of #14	982
CL-15	N 862412, E 2031338	984
CL-16	N 862432, E 2031563	980
CL-17	N 862429, E 2031536	981

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

BRAUN INTERTEC

Braun Intertec Corporation
3900 Roosevelt Road
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Saint Cloud, MN 56301

Phone: 320.253.9940
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Report of Field Compaction Tests

Date: May 17, 2010 **Project:** SC-09-01367B **Report:** 4

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-18	5/18/10	N	CLP-1: CLS	13.9	114.6	14.8	115.7	101	99	A
CL-19	5/18/10	N	CLP-1: CLS	13.9	114.6	15.7	106.2	93	99	B
CL-19A	5/18/10	N	CLP-1: CLS	13.9	114.6	14.7	114.8	100	99	A
CL-20	5/18/10	N	CLP-1: CLS	13.9	114.6	14.7	112.5	98	99	B
CL-20A	5/18/10	N	CLP-1: CLS	13.9	114.6	14.7	114.3	100	99	A
CL-21	5/18/10	N	CLP-1: CLS	13.9	114.6	14.1	115.1	100	99	A
CL-22	5/18/10	N	CLP-1: CLS	13.9	114.6	14.0	116.9	102	99	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-18	N 8624525, E 2031509	982.5
CL-19	N 862428, E 2031598	983.5
CL-19A	Retest of CL-19	983.5
CL-20	N 862437, E 2031749	982
CL-20A	Retest of 20	982
CL-21	N 862443, E 2031880	983.5
CL-22	N 862459, E 2031917	981

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

BRAUN INTERTEC

Braun Intertec Corporation
3900 Roosevelt Road
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Saint Cloud, MN 56301

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Report of Field Compaction Tests

Date: May 17, 2010

Project: SC-09-01367B

Report: 5

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-23	5/18/10	N	CLP-1: CLS	13.9	114.6	15.4	115.6	101	99	A
CL-24	5/18/10	N	CLP-1: CLS	13.9	114.6	14.0	113.4	99	99	A
CL-25	5/18/10	N	CLP-1: CLS	13.9	114.6	14.4	116.2	101	99	A
CL-26	5/19/10	N	CLP-1: CLS	13.9	114.6	14.7	103.9	91	99	B
CL-26A	5/19/10	N	CLP-1: CLS	13.9	114.6	14.0	113.1	99	99	A
CL-27	5/19/10	N	CLP-1: CLS	13.9	114.6	14.5	113.8	99	99	A
CL-28	5/19/10	N	CLP-1: CLS	13.9	114.6	10.8	114.0	99	99	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-23	N 862432, E 2031719	984
CL-24	N 862420, E 2031555	984
CL-25	N 862454, E 2031911	982
CL-26	N 862417, E 2030585	1005.5
CL-26A	Retest of CL-26A	1005.5
CL-27	N 862419, E 2030593	1006
CL-28	N 862418, E 2030579	1008

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

BRAUN INTERTEC

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3900 Roosevelt Road
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Report of Field Compaction Tests

Date:

Project: SC-09-01367B

Report: 6

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-28A	5/19/10	N	CLP-1: CLS	13.9	114.6	14.0	118.8	104	99	A
CL-29	5/20/10	N	CLP-1: CLS	13.9	114.6	15.8	102.3	89	95	B
CL-29A	5/20/10	N	CLP-1: CLS	13.9	114.6	15.3	113.8	99	99	A
CL-30	5/20/10	N	CLP-1: CLS	13.9	114.6	14.1	113.3	99	99	A
CL-31	5/20/10	N	CLP-1: CLS	13.9	114.6	13.7	113.9	99	99	A
CL-32	5/20/10	N	CLP-1: CLS	13.9	114.6	13.9	118.3	103	99	A
CL-33	5/20/10	N	CLP-1: CLS	13.9	114.6	15.6	117.0	102	99	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-28A	Retest of CL-28	1008
CL-29	N 862939, E 2032003	979.5
CL-29A	Retest of CL-29A	979.5
CL-30	N 862775, E 2032004	979.5
CL-31	N 862742, E 2032005	981
CL-32	N 862607, E 2032006	981
CL-33	N 862599, E 2032008	982

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

AA/EOE

BRAUN INTERTEC

Braun Intertec Corporation
3900 Roosevelt Road
Suite 113
Saint Cloud, MN 56301

Phone: 320.253.9940
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Report of Field Compaction Tests

Date: June 11, 2010 **Project:** SC-09-01367B **Report:** 7

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-34	5/20/10	N	CLP-1 CLS	13.9	114.6	14.7	119.0	104	99	A
CL-35	5/20/10	N	CLP-1 CLS	13.9	114.6	15.2	115.8	101	99	A
CL-36	5/20/10	N	CLP-1 CLS	13.9	114.6	14.3	113.5	99	99	A
CL-37	5/20/10	N	CLP-1 CLS	13.9	114.6	15.1	113.2	99	99	A
CL-38	6/2/10	N	CLP-1 CLS	13.9	114.6	14.5	114.7	100	99	A
CL-39	6/21/10	N	CLP-1 CLS	13.9	114.6	16.9	114.9	100	99	A
CL-40	6/21/10	N	CLP-1 CLS	13.9	114.6	17.4	113.6	99	99	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-34	N 862729, E 2032008	983
CL-35	N 862829, E 2032010	983.5
CL-36	N 862628, E 2032011	984
CL-37	N 862492, E 2031956	982
CL-38	N 862407, E 2031211	983
CL-39	N 863546, E 2031993	986
CL-40	N 863404, E 2032003	980

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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3900 Roosevelt Road
Suite 113
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Web: brauninterteC.com

Report of Field Compaction Tests

Date: June 22, 2010 **Project:** SC-09-01367B **Report:** 8

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-41	6/21/10	N	CLP-1 CLS	13.9	114.6	15.0	113.1	99	99	A
CL-42	6/21/10	N	CLP-1 CLS	13.9	114.6	15.2	113.8	99	99	A
CL-43	6/21/10	N	CLP-1 CLS	13.9	114.6	14.2	117.3	102	99	A
CL-44	6/21/10	N	CLP-1 CLS	13.9	114.6	15.6	116.6	102	99	A
CL-45	6/21/10	N	CLP-1 CLS	13.9	114.6	16.3	113.2	99	99	A
CL-46	6/21/10	N	CLP-1 CLS	13.9	114.6	14.2	114.6	100	99	A
CL-47	6/21/10	N	CLP-1 CLS	13.9	114.6	14.8	114.0	99	99	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-41	N 863356, E 2032003	980.5
CL-42	N 863298, E 2032006	981.5
CL-43	N 863486, E 2032019	985
CL-44	N 863612, E 2-31999	993.5
CL-45	N 863433, E 2032009	984
CL-46	N 863183, E 2032007	982.5
CL-47	N 863095, E 2032012	984

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

BRAUN INTERTEC

Braun Intertec Corporation
3900 Roosevelt Road
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Web: braunintertec.com

Report of Field Compaction Tests

Date: July 16, 2010 **Project:** SC-09-01367B **Report:** 9

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-48	6/21/10	N	CLP-1: CLS	13.9	114.6	13.2	114.3	100	99	A
CL-49	7/15/10	N	CLP-1: CLS	13.9	114.6	15.3	112.9	99	99	A
CL-50	7/15/10	N	CLP-1: CLS	13.9	114.6	14.1	113.1	99	99	A
CL-51	7/15/10	N	CLP-1: CLS	13.9	114.6	15.0	115.6	101	99	A
CL-52	7/16/10	N	P-20: CL	13.9	114.6	15.7	114.8	100	97	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-48	N 863026, E 2032009	984
CL-49	N 862413, E 2031382	984
CL-50	N 862437, E 2031823	983.5
CL-51	N862699, E 2032014	982.5
CL-52	N 862767, E 2032014	983.5

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

Clay In-place Permeability and Index Test Reports

Hydraulic Conductivity Test Data

Project: Sherco Pond 3S Date: 6/2/2010

Reported To: McCain & Associates, Inc. Job No.: 7435-A

Boring:							
Sample No.:	TW-1	TW-2	TW-3				
Depth:							
Location:							
Sample Type:	3T	3T	3T				
Soil Type:	Sandy Lean Clay w/a little gravel (CL)	Sandy Lean Clay w/a little gravel (CL)	Sandy Lean Clay w/a little gravel (CL)				
Atterberg Limits							
LL							
PL							
PI							
Permeability Test							
Before Test Conditions: Saturation %:							
Porosity:							
Ht. (in):	2.91	2.69	2.89				
Dia. (in):	2.86	2.87	2.86				
Dry Density (pcf):	112.7	116.0	107.7				
Water Content:	15.5%	15.6%	17.5%				
Test Type:	Falling Head	Falling Head	Falling Head				
Max Head (ft):	5.0	5.0	5.0				
Confining press. (Effective-psi):	2.0	2.0	2.0				
Trial No.:	12-16	11-15	6-10				
Water Temp °C:	22.0	22.0	22.0				
% Compaction							
% Saturation (After Test)	97.4%	98.1%	95.6%				
Coefficient of Permeability							
K @ 20 °C (cm/sec)	**1.8×10^{-8}**	**5.5×10^{-9}**	**1.9×10^{-8}**				
K @ 20 °C (ft/min)	**3.6×10^{-8}**	**1.1×10^{-8}**	**3.8×10^{-8}**				
Notes:							

9301 Bryant Ave. South Suite 107 SOIL ENGINEERING TESTING, INC. Bloomington, Minnesota 55420-3436

Hydraulic Conductivity Test Data

Project: Sherco Pond 3S Date: 6/30/2010

Reported To: McCain & Associates, Inc. Job No.: 7435-B

Boring:							
Sample No.:	TW-4						
Depth:							
Location:							
Sample Type:	3T						
Soil Type:	Sandy Lean Clay with a trace of gravel (CL/SC)						
Atterberg Limits							
LL	32.2						
PL	15.0						
PI	17.2						
Permeability Test							
Before Test Conditions: Saturation %:							
Porosity:							
Ht. (in):	2.97						
Dia. (in):	2.88						
Dry Density (pcf):	111.5						
Water Content:	16.7%						
Test Type:	Falling						
Max Head (ft):	5.0						
Confining press. (Effective-psi):	2.0						
Trial No.:	11-15						
Water Temp °C:	21.0						
% Compaction							
% Saturation (After Test)	97.9%						
Coefficient of Permeability							
K @ 20 °C (cm/sec)	**1.0×10^{-7}**						
K @ 20 °C (ft/min)	**2.0×10^{-7}**						
Notes:							

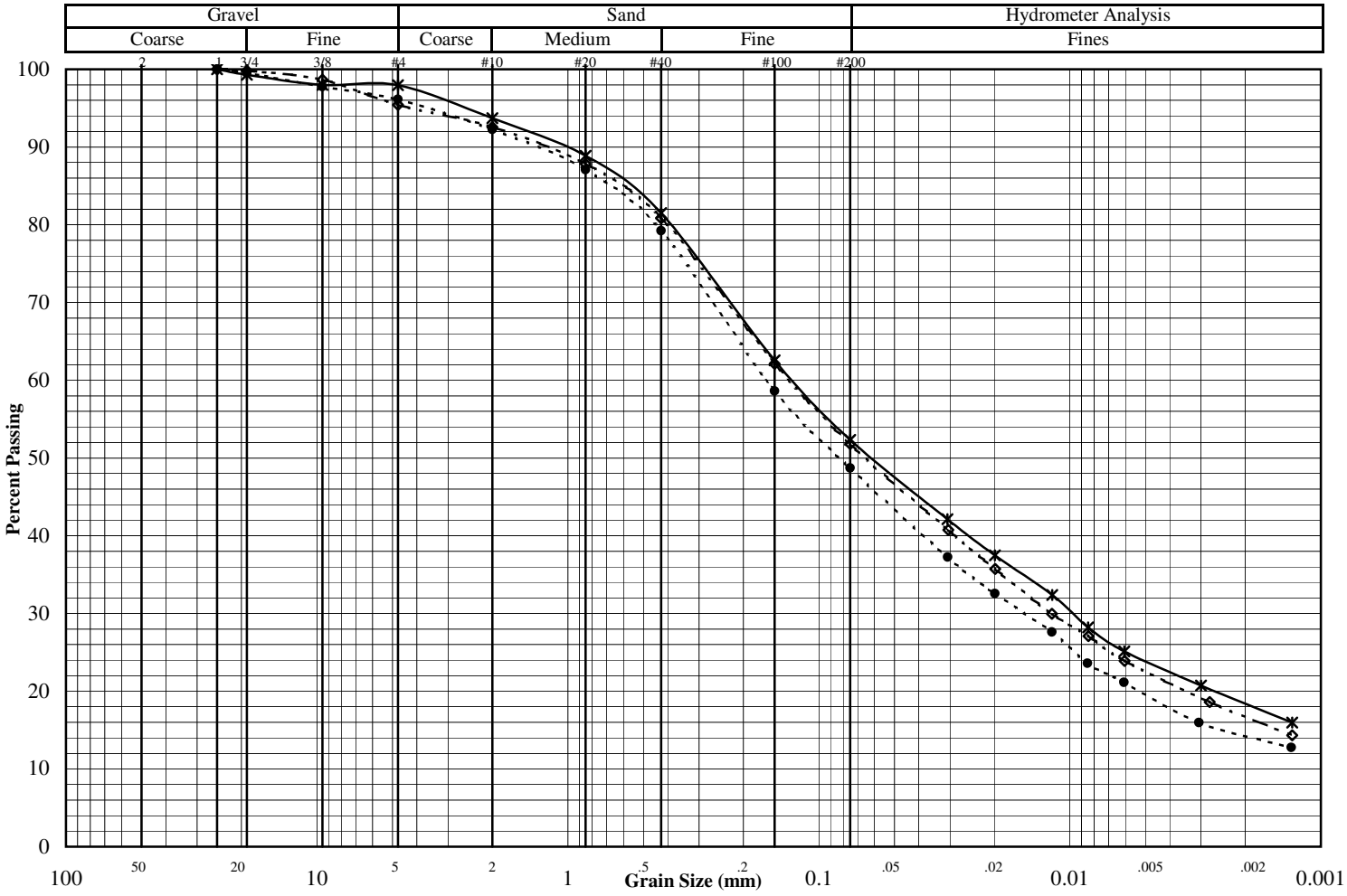
9301 Bryant Ave. South Suite 107 SOIL ENGINEERING TESTING, INC. Bloomington, Minnesota 55420-3436

Grain Size Distribution ASTM D422

Job No. : **7435-A**

Project:	Sherco Pond 3S	Test Date:	5/19/10
Reported To:	McCain & Associates, Inc.	Report Date:	5/24/10

	Location / Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Classification
*	Clay #1			Bucket	Sandy Lean Clay w/a trace of gravel (CL)
●	Clay #2			Bucket	Clayey Sand w/a trace of gravel (SC/CL)
◇	Clay #3			Bucket	Sandy Lean Clay w/a little gravel (CL/SC)



Other Tests

	*	●	◇
Liquid Limit	32.5	30.8	33.4
Plastic Limit	15.9	15.0	15.2
Plasticity Index	16.6	15.8	18.2
Water Content	16.4	15.6	15.9
Dry Density (pcf)			
Specific Gravity	2.68*	2.68*	2.68*
Porosity			
Organic Content			
pH			
Shrinkage Limit			
Penetrometer			
Qu (psf)			

(* = assumed)

Percent Passing

	*	●	◇
Mass (g)	11886.1	12400.1	9369.0
2"			
1.5"			
1"	100.0	100.0	100.0
3/4"	99.3	99.5	99.8
3/8"	98.0	97.8	98.7
#4	97.9	96.1	95.4
#10	93.7	92.3	92.6
#20	88.9	87.1	87.8
#40	81.5	79.2	80.8
#100	62.6	58.6	62.1
#200	52.3	48.7	51.8

	*	●	◇
D_{60}			
D_{30}			
D_{10}			
C_U			
C_C			

Remarks:

9301 Bryant Ave. South, Suite 107

SOIL ENGINEERING TESTING, INC.

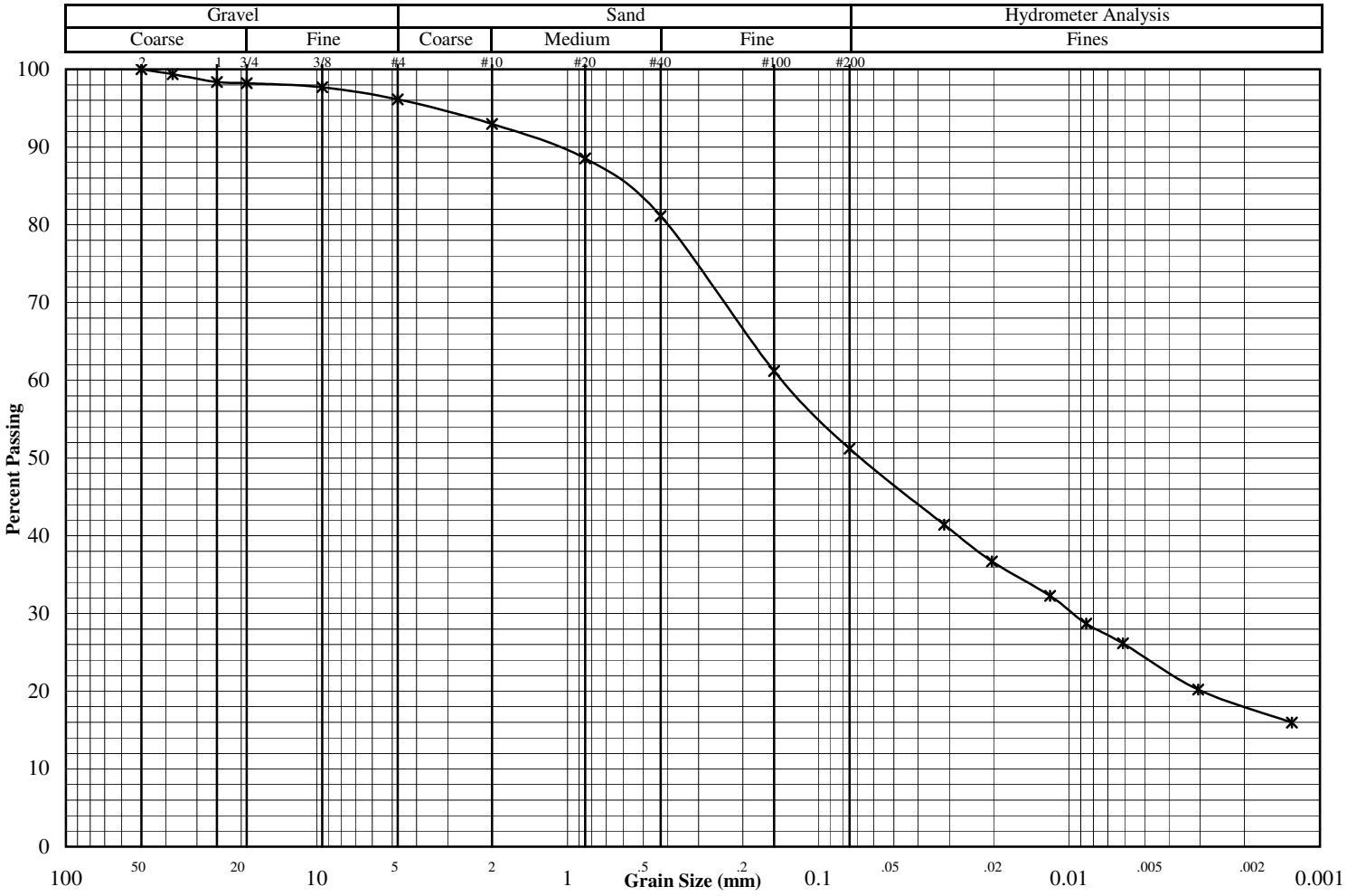
Bloomington, Minnesota 55420-3436

Grain Size Distribution ASTM D422

Job No. : **7435-B**

Project:	Sherco Pond 3S	Test Date:	6/27/10
Reported To:	McCain & Associates, Inc.	Report Date:	6/29/10

	Location / Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Classification
*	Clay #4			Bucket	Sandy Lean Clay with a trace of gravel (CL/SC)
●					
◇					



Other Tests

	*	●	◇
Liquid Limit	32.2		
Plastic Limit	15.0		
Plasticity Index	17.2		
Water Content	16.0		
Dry Density (pcf)			
Specific Gravity	2.68*		
Porosity			
Organic Content			
pH			
Shrinkage Limit			
Penetrometer			
Qu (psf)			

(* = assumed)

Percent Passing

	*	●	◇
Mass (g)	11756.0		
2"	100.0		
1.5"	99.4		
1"	98.4		
3/4"	98.2		
3/8"	97.7		
#4	96.1		
#10	93.0		
#20	88.5		
#40	81.1		
#100	61.2		
#200	51.2		

	*	●	◇
D_{60}			
D_{30}			
D_{10}			
C_U			
C_C			

Remarks:

9301 Bryant Ave. South, Suite 107

SOIL ENGINEERING TESTING, INC.

Bloomington, Minnesota 55420-3436

SET Job#: **7435-A**

Extrusion Log

Date: 5/18/2010

Project/Client: Sherco Pond 3S / McCain & Associates, Inc. & Xcel Energy

Boring #	Sample#	Depth(ft)	Recovery (in)		Soil Description
	TW-1		BE:	13.25	Top 0.5" Disturbed
			AE:	13	12.5" Sandy Lean Clay with a little gravel, brown(CL)
	TW-2		BE:	13	12.5" Sandy Lean Clay with a little gravel, brown (CL)
			AE:	12.5	
	TW-3		BE:	12.5	12.5" Sandy Lean Clay with a little gravel, brown and grayish brown (CL)
			AE:	12.5	

SET Job#: **7435-B** **Extrusion Log** Date: 6/23/2010

Project/Client: Sherco Pond 3S / McCain & Asociates, Inc.

Boring #	Sample#	Depth(ft)	Recovery (in)		Soil Description
	TW#4		BE:	12.5	Sandy Lean Clay with a trace of gravel, brown and grayish brown (CL/SC)
			AE:	12.5	

Granular Drainage Material Test Reports

Granular Drainage Material Gradation Test Reports
Granular Drainage Material Permeability Test Reports

Granular Drainage Material Gradation Test Reports

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Material Test Report

Report No: MAT:W10-000795-S1
Issue No: 2

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 6/1/2010

Sample Details

Sample ID:	W10-000795-S1
Alternate Sample ID:	GDM-1
Sampled By:	Adam Jelinski
Sampling Method:	ASTM D75/AASHTO T2/MnDOT 1002 Stockpile
Date Sampled:	5/26/2010
Date Submitted:	5/26/2010
Specification:	SC-09-01367B Granular Drainage Material - Project
Source:	Onsite material
Material Type:	Granular Drainage Material
Sample Location:	North Slope, East End

Other Test Results

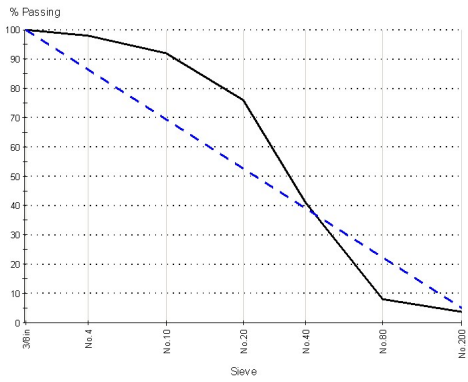
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 5/28/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	98	
No.10 (2.0mm)	92	
No.20 (850µm)	76	
No.40 (425µm)	41	
No.80 (180µm)	8	
No.200 (75µm)	3.7	0 – 5

Chart



Comments

N/A

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Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Material Test Report

Report No: MAT:W10-000795-S2
Issue No: 2

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202
Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308
PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 6/1/2010

Sample Details

Sample ID:	W10-000795-S2
Alternate Sample ID:	GDM-2
Sampled By:	Adam Jelinski
Sampling Method:	ASTM D75/AASHTO T2/MnDOT 1002 Stockpile
Date Sampled:	5/26/2010
Date Submitted:	5/26/2010
Specification:	SC-09-01367B Granular Drainage Material - Project
Source:	Onsite material
Material Type:	Granular Drainage Material
Sample Location:	North Slope, West End

Other Test Results

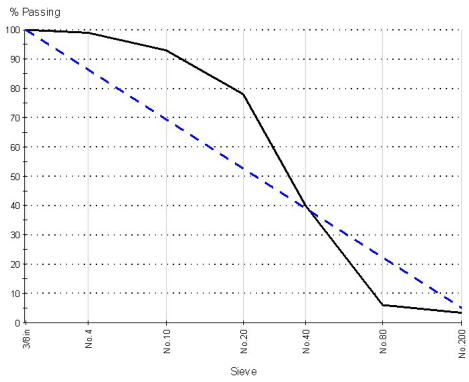
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 5/28/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	99	
No.10 (2.0mm)	93	
No.20 (850µm)	78	
No.40 (425µm)	40	
No.80 (180µm)	6	
No.200 (75µm)	3.2	0 – 5

Chart



Comments

N/A

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Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Material Test Report

Report No: MAT:W10-000795-S3
Issue No: 2

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202
Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308
PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 6/1/2010

Sample Details

Sample ID:	W10-000795-S3
Alternate Sample ID:	GDM-3
Sampled By:	Adam Jelinski
Sampling Method:	ASTM D75/AASHTO T2/MnDOT 1002 Stockpile
Date Sampled:	5/26/2010
Date Submitted:	5/26/2010
Specification:	SC-09-01367B Granular Drainage Material - Project
Source:	Onsite material
Material Type:	Granular Drainage Material
Sample Location:	West Slope, North End

Other Test Results

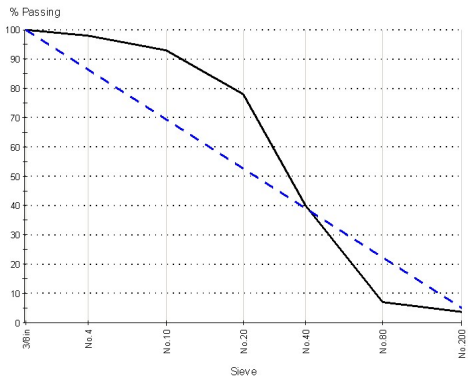
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 5/28/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	98	
No.10 (2.0mm)	93	
No.20 (850µm)	78	
No.40 (425µm)	40	
No.80 (180µm)	7	
No.200 (75µm)	3.8	0 – 5

Chart



Comments

N/A

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BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001762-S1
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/3/2010

Sample Details

Sample ID: W10-001762-S1
Alternate Sample ID: GDM 4
Sampled By:
Sampling Method:
Date Sampled: 7/27/2010
Date Submitted: 8/2/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

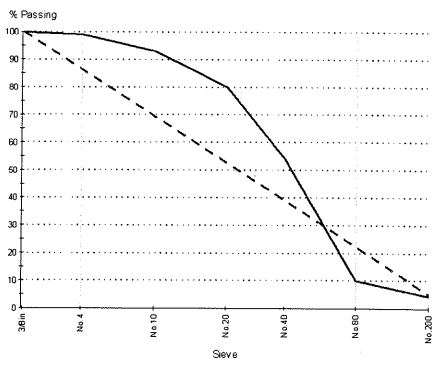
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/3/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	99	
No.10 (2.0mm)	93	
No.20 (850µm)	80	
No.40 (425µm)	54	
No.80 (180µm)	10	
No.200 (75µm)	4.5	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

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BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001762-S2
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202
Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308
PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/3/2010

Sample Details

Sample ID: W10-001762-S2
Alternate Sample ID: GDM 5
Sampled By:
Sampling Method:
Date Sampled: 7/27/2010
Date Submitted: 8/2/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

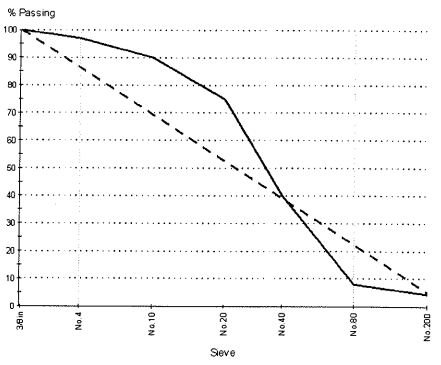
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/3/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	97	
No.10 (2.0mm)	90	
No.20 (850µm)	75	
No.40 (425µm)	40	
No.80 (180µm)	8	
No.200 (75µm)	4.5	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

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BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001762-S3
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/3/2010

Sample Details

Sample ID: W10-001762-S3
Alternate Sample ID: GDM 6
Sampled By:
Sampling Method:
Date Sampled: 7/27/2010
Date Submitted: 8/2/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

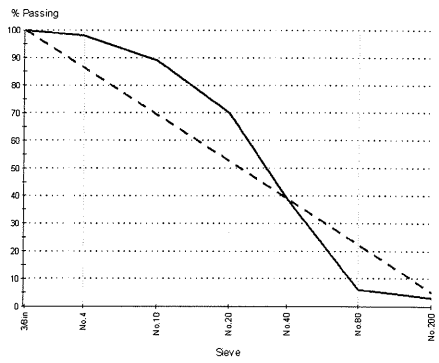
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/3/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	98	
No.10 (2.0mm)	89	
No.20 (850µm)	70	
No.40 (425µm)	39	
No.80 (180µm)	6	
No.200 (75µm)	2.9	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001762-S4
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202
Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308
PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/3/2010

Sample Details

Sample ID: W10-001762-S4
Alternate Sample ID: GDM 7
Sampled By:
Sampling Method:
Date Sampled: 7/27/2010
Date Submitted: 8/2/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

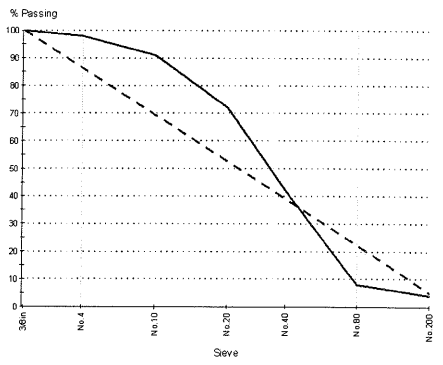
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/3/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	98	
No.10 (2.0mm)	91	
No.20 (850µm)	72	
No.40 (425µm)	42	
No.80 (180µm)	8	
No.200 (75µm)	4.0	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001762-S5
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202
Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308
PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/3/2010

Sample Details

Sample ID: W10-001762-S5
Alternate Sample ID: GDM 8
Sampled By:
Sampling Method:
Date Sampled: 7/27/2010
Date Submitted: 8/2/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

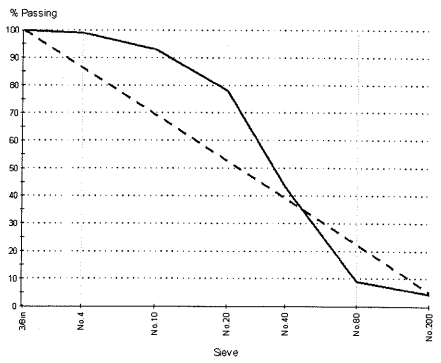
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/3/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	99	
No.10 (2.0mm)	93	
No.20 (850µm)	78	
No.40 (425µm)	43	
No.80 (180µm)	9	
No.200 (75µm)	4.3	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001840-S1
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202
Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308
PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/9/2010

Sample Details

Sample ID: W10-001840-S1
Alternate Sample ID: GDM-9
Sampled By:
Sampling Method:
Date Sampled: 8/5/2010
Date Submitted: 8/6/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

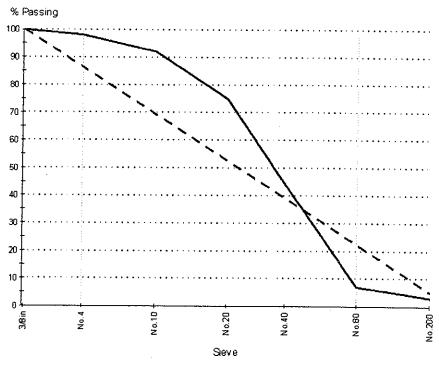
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/9/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	98	
No.10 (2.0mm)	92	
No.20 (850µm)	75	
No.40 (425µm)	44	
No.80 (180µm)	7	
No.200 (75µm)	2.9	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001840-S2
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/9/2010

Sample Details

Sample ID: W10-001840-S2
Alternate Sample ID: GDM-10
Sampled By:
Sampling Method:
Date Sampled: 8/5/2010
Date Submitted: 8/6/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

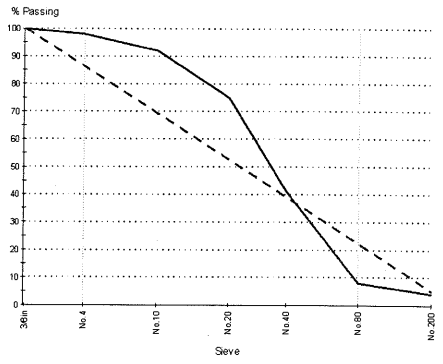
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/9/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	98	
No.10 (2.0mm)	92	
No.20 (850µm)	75	
No.40 (425µm)	41	
No.80 (180µm)	8	
No.200 (75µm)	4.1	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001840-S3
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/9/2010

Sample Details

Sample ID: W10-001840-S3
Alternate Sample ID: GDM-11
Sampled By:
Sampling Method:
Date Sampled: 8/5/2010
Date Submitted: 8/6/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

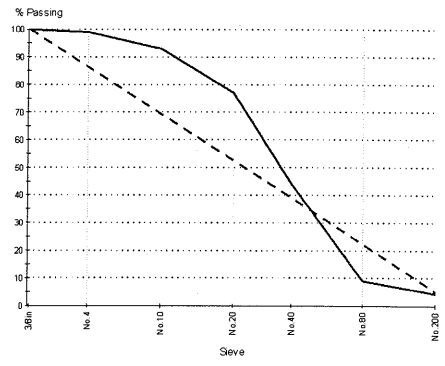
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/9/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	99	
No.10 (2.0mm)	93	
No.20 (850µm)	77	
No.40 (425µm)	44	
No.80 (180µm)	9	
No.200 (75µm)	4.2	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001840-S4
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202
Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308
PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/9/2010

Sample Details

Sample ID: W10-001840-S4
Alternate Sample ID: GDM-12
Sampled By:
Sampling Method:
Date Sampled: 8/5/2010
Date Submitted: 8/6/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

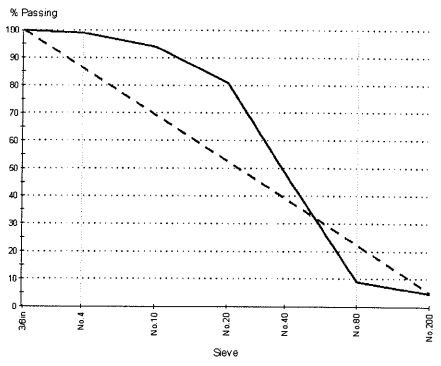
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/9/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	99	
No.10 (2.0mm)	94	
No.20 (850µm)	81	
No.40 (425µm)	48	
No.80 (180µm)	9	
No.200 (75µm)	4.6	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001840-S5
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/9/2010

Sample Details

Sample ID: W10-001840-S5
Alternate Sample ID: GDM-13
Sampled By:
Sampling Method:
Date Sampled: 8/5/2010
Date Submitted: 8/6/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

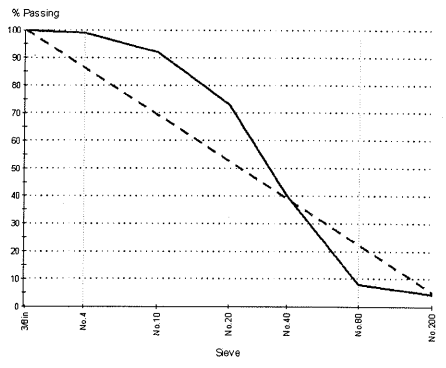
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/9/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	99	
No.10 (2.0mm)	92	
No.20 (850µm)	73	
No.40 (425µm)	40	
No.80 (180µm)	8	
No.200 (75µm)	4.2	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001840-S6
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202
Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308
PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/9/2010

Sample Details

Sample ID: W10-001840-S6
Alternate Sample ID: GDM-14
Sampled By:
Sampling Method:
Date Sampled: 8/5/2010
Date Submitted: 8/6/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

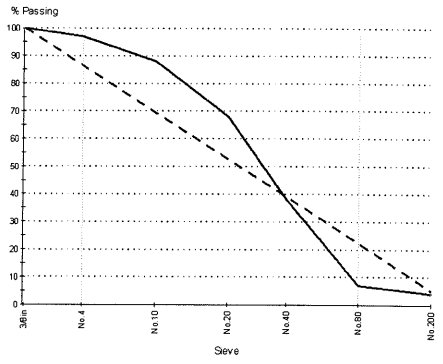
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/9/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	97	
No.10 (2.0mm)	88	
No.20 (850µm)	68	
No.40 (425µm)	38	
No.80 (180µm)	7	
No.200 (75µm)	4.0	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001840-S7
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/9/2010

Sample Details

Sample ID: W10-001840-S7
Alternate Sample ID: GDM-15
Sampled By:
Sampling Method:
Date Sampled: 8/5/2010
Date Submitted: 8/6/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

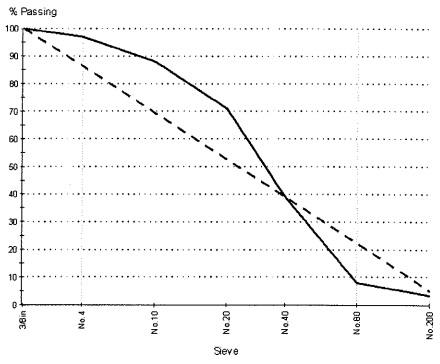
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/9/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	97	
No.10 (2.0mm)	88	
No.20 (850µm)	71	
No.40 (425µm)	39	
No.80 (180µm)	8	
No.200 (75µm)	3.2	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001840-S8
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202
Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308
PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/9/2010

Sample Details

Sample ID: W10-001840-S8
Alternate Sample ID: GDM-16
Sampled By:
Sampling Method:
Date Sampled: 8/5/2010
Date Submitted: 8/6/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

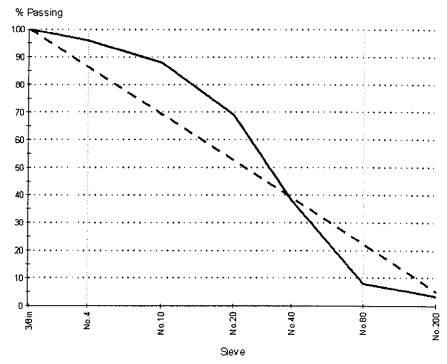
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/9/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	96	
No.10 (2.0mm)	88	
No.20 (850µm)	69	
No.40 (425µm)	38	
No.80 (180µm)	8	
No.200 (75µm)	3.4	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001840-S9
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/9/2010

Sample Details

Sample ID: W10-001840-S9
Alternate Sample ID: GDM-17
Sampled By:
Sampling Method:
Date Sampled: 8/5/2010
Date Submitted: 8/6/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

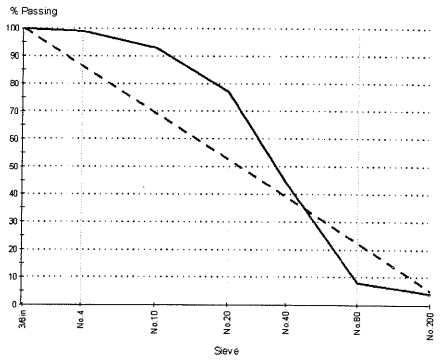
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/9/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	99	
No.10 (2.0mm)	93	
No.20 (850µm)	77	
No.40 (425µm)	44	
No.80 (180µm)	8	
No.200 (75µm)	4.0	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001840-S10
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/9/2010

Sample Details

Sample ID: W10-001840-S10
Alternate Sample ID: GDM-18
Sampled By:
Sampling Method:
Date Sampled: 8/5/2010
Date Submitted: 8/6/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

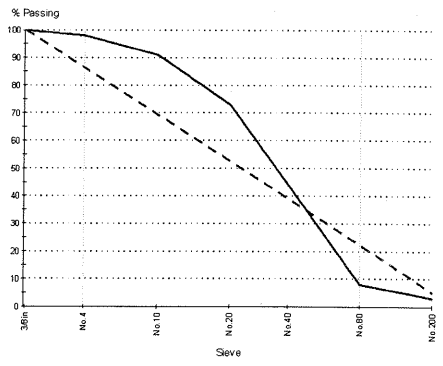
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/9/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	98	
No.10 (2.0mm)	91	
No.20 (850µm)	73	
No.40 (425µm)	44	
No.80 (180µm)	8	
No.200 (75µm)	3.1	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001840-S11
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202
Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308
PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/9/2010

Sample Details

Sample ID: W10-001840-S11
Alternate Sample ID: GDM-19
Sampled By:
Sampling Method:
Date Sampled: 8/5/2010
Date Submitted: 8/6/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

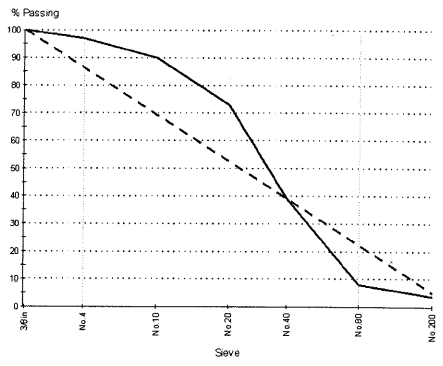
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/9/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	97	
No.10 (2.0mm)	90	
No.20 (850µm)	73	
No.40 (425µm)	39	
No.80 (180µm)	8	
No.200 (75µm)	3.7	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001840-S12
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 8/9/2010

Sample Details

Sample ID: W10-001840-S12
Alternate Sample ID: GDM-20
Sampled By:
Sampling Method:
Date Sampled: 8/5/2010
Date Submitted: 8/6/2010
Specification: SC-09-01367B Granular Drainage Material - Project
Source:
Material Type:
Sample Location:

Other Test Results

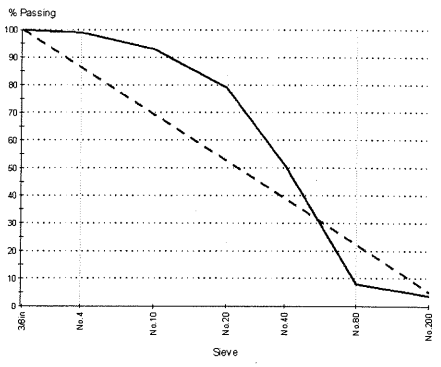
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/9/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	99	
No.10 (2.0mm)	93	
No.20 (850µm)	79	
No.40 (425µm)	51	
No.80 (180µm)	8	
No.200 (75µm)	3.6	0 – 5

Chart



Comments

The test results meet the above referenced specifications.

(c) 2000-2009 QESTLab by SpectraQEST.com

Granular Drainage Material Permeability Test Reports

BRAUN INTERTEC

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Web: brauninertec.com

Constant Head Permeability-ASTM D2434

Date: 04-Jun-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

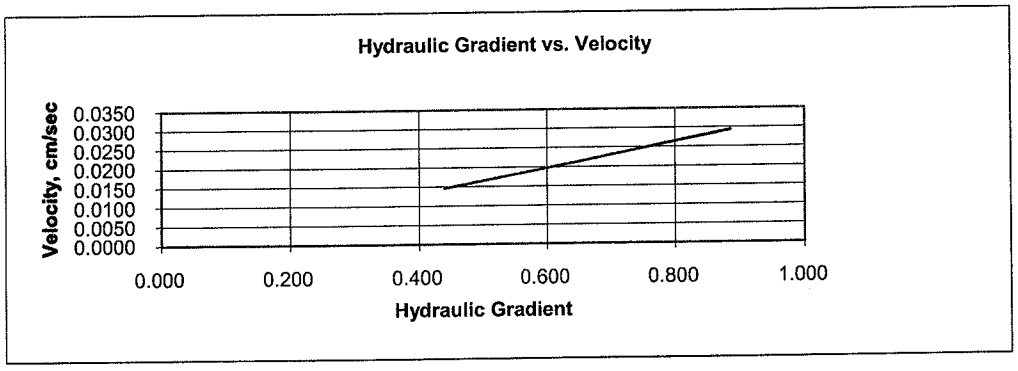
Background Information

Sample No:	GDM-1	Date Sampled:	26-May-10
Classification:	Poorly Graded Sand	Date tested:	04-Jun-10
Sample Location:	North Slope, East End	Sampled by:	Adam Jelinski
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	107.7	Maximum Density:	NA
Void ratio:	0.54	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.2	9.9	0.89	0.0295	3.4E-02
2	19.2	7.2	0.64	0.0211	3.4E-02
3	19.2	4.9	0.44	0.0146	3.4E-02
4	19.2	2.8	0.25	0.0087	3.6E-02



Average coefficient of permeability (@20°C) = 3.4E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

BRAUN INTERTEC

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Constant Head Permeability-ASTM D2434

Date: 04-Jun-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

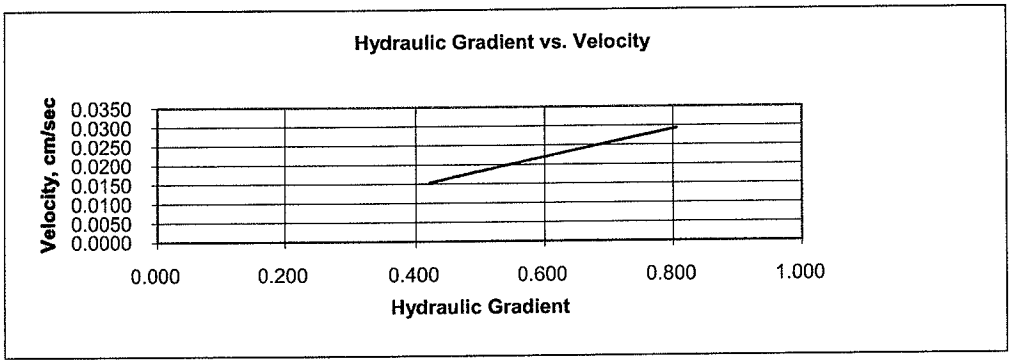
Background Information

Sample No:	GDM-2	Date Sampled:	26-May-10
Classification:	Poorly Graded Sand	Date tested:	04-Jun-10
Sample Location:	North Slope, West End	Sampled by:	Adam Jelinski
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	109.7	Maximum Density:	NA
Void ratio:	0.51	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.2	9.0	0.81	0.0295	3.8E-02
2	19.2	6.0	0.54	0.0197	3.8E-02
3	19.2	4.7	0.42	0.0154	3.7E-02
4	19.2	2.8	0.25	0.0091	3.7E-02



Average coefficient of permeability (@20°C) = 3.7E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

BRAUN INTERTEC

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Constant Head Permeability-ASTM D2434

Date: 04-Jun-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

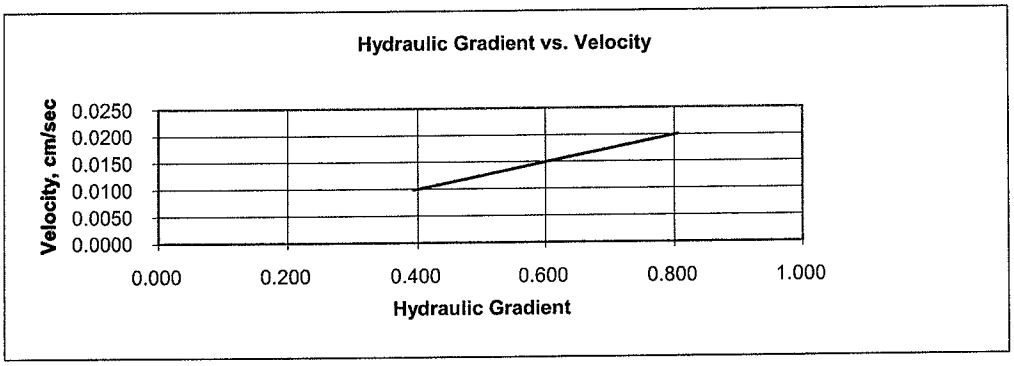
Background Information

Sample No:	GDM-3	Date Sampled:	26-May-10
Classification:	Poorly Graded Sand	Date tested:	04-Jun-10
Sample Location:	West Slope, North End	Sampled by:	Adam Jelinski
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	110.2	Maximum Density:	NA
Void ratio:	0.50	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.2	9.0	0.81	0.0201	2.6E-02
2	19.2	6.0	0.54	0.0134	2.6E-02
3	19.2	4.4	0.39	0.0099	2.6E-02
4	19.2	2.1	0.19	0.0047	2.5E-02



Average coefficient of permeability (@20°C) = 2.6E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 10-Aug-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

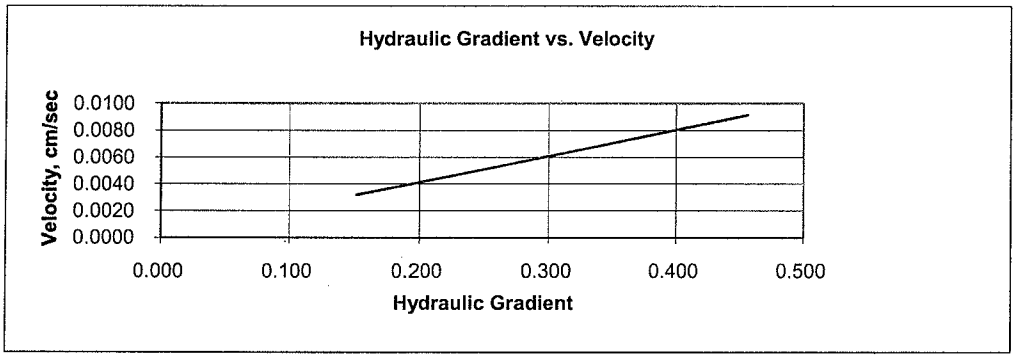
Background Information

Sample No:	GDM-4	Date Sampled:	27-Jul-10
Classification:	Poorly Graded Sand	Date tested:	10-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	110.2	Maximum Density:	NA
Void ratio:	0.50	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.2	1.7	0.15	0.0032	2.2E-02
2	19.2	2.9	0.26	0.0053	2.1E-02
3	19.2	5.1	0.46	0.0092	2.1E-02
4	19.2	8.7	0.78	0.0152	2.0E-02



Average coefficient of permeability (@20°C) = 2.1E-02 cm/sec

Remarks:

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Project Manager

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Constant Head Permeability-ASTM D2434

Date: 10-Aug-10

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Client: Xcel Energy Services, Inc.
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Becker, MN

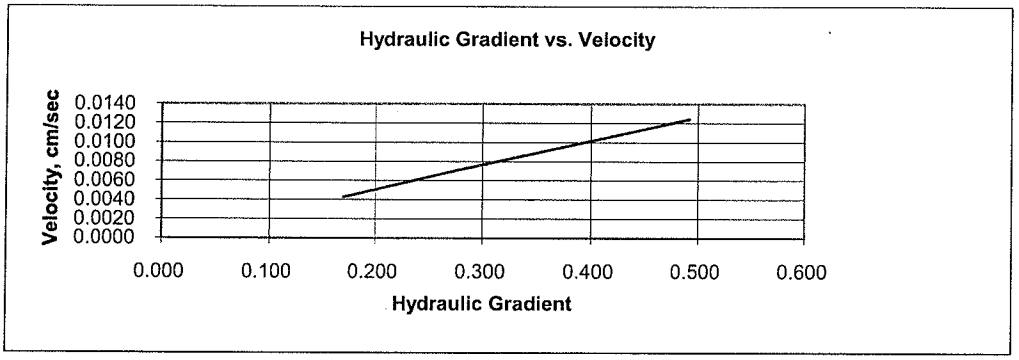
Background Information

Sample No:	GDM-5	Date Sampled:	27-Jul-10
Classification:	Poorly Graded Sand	Date tested:	10-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	109.9	Maximum Density:	NA
Void ratio:	0.50	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.2	1.9	0.17	0.0043	2.6E-02
2	19.2	3.1	0.28	0.0071	2.6E-02
3	19.2	5.5	0.49	0.0124	2.6E-02
4	19.2	9.6	0.86	0.0215	2.6E-02



Average coefficient of permeability (@20°C) = 2.6E-02 cm/sec

Remarks:

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Constant Head Permeability-ASTM D2434

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Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

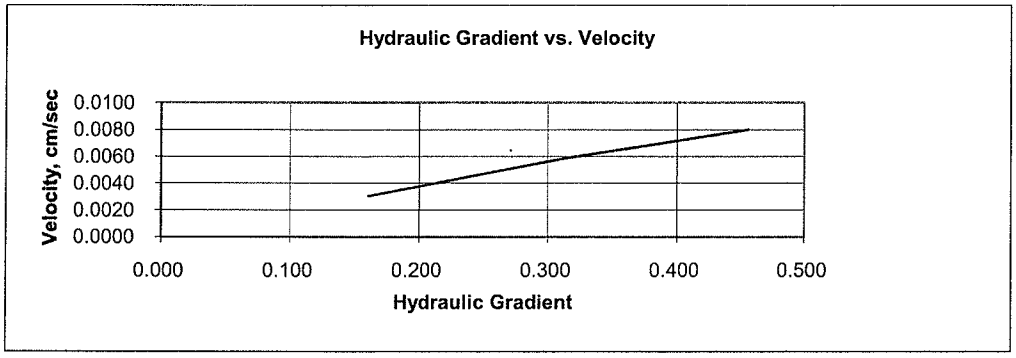
Background Information

Sample No:	GDM-6	Date Sampled:	27-Jul-10
Classification:	Poorly Graded Sand	Date tested:	10-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	110.7	Maximum Density:	NA
Void ratio:	0.49	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.2	1.8	0.16	0.0030	1.9E-02
2	19.2	3.5	0.31	0.0059	1.9E-02
3	19.2	5.1	0.46	0.0080	1.8E-02
4	19.2	8.9	0.80	0.0143	1.8E-02



Average coefficient of permeability (@20°C) = 1.9E-02 cm/sec

Remarks:

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Project Manager

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Constant Head Permeability-ASTM D2434

Date: 10-Aug-10

Project Number: SC-09-01367B

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Denver, CO 80202

Project: Pond 3 South Construction
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Sherburne County Generating Plant
Becker, MN

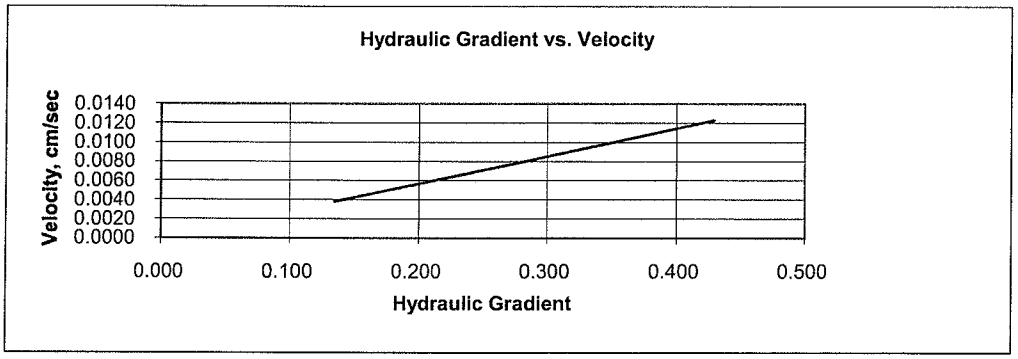
Background Information

Sample No:	GDM-7	Date Sampled:	27-Jul-10
Classification:	Poorly Graded Sand	Date tested:	10-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	109.6	Maximum Density:	NA
Void ratio:	0.51	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.3	1.5	0.13	0.0038	2.9E-02
2	19.3	3.2	0.29	0.0081	2.9E-02
3	19.3	4.8	0.43	0.0123	2.9E-02
4	19.3	7.9	0.71	0.0194	2.8E-02



Average coefficient of permeability (@20°C) = 2.9E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 10-Aug-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

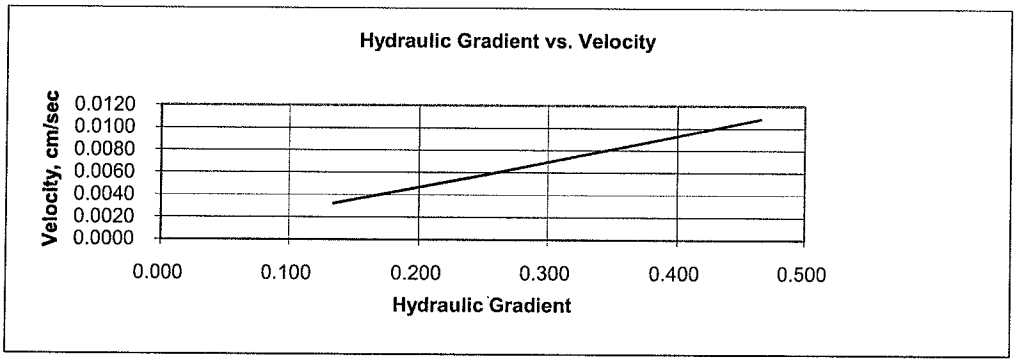
Background Information

Sample No:	GDM-8	Date Sampled:	27-Jul-10
Classification:	Poorly Graded Sand	Date tested:	10-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	109.3	Maximum Density:	NA
Void ratio:	0.51	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.0	1.5	0.13	0.0033	2.5E-02
2	19.0	2.9	0.26	0.0060	2.4E-02
3	19.0	5.2	0.47	0.0109	2.4E-02
4	19.0	8.8	0.79	0.0184	2.4E-02



Average coefficient of permeability (@20°C) = 2.4E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

AA/EOE

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Constant Head Permeability-ASTM D2434

Date: 17-Aug-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

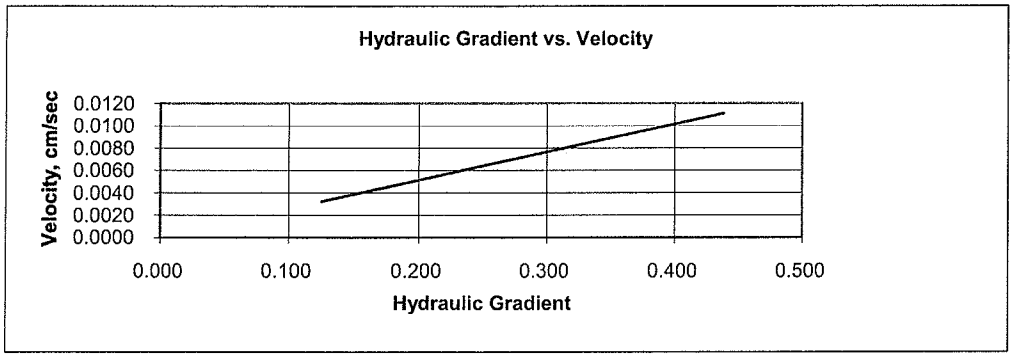
Background Information

Sample No:	GDM-9	Date Sampled:	05-Aug-10
Classification:	Poorly Graded Sand	Date tested:	09-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	108.7	Maximum Density:	NA
Void ratio:	0.52	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.2	1.4	0.13	0.0033	2.7E-02
2	19.2	2.7	0.24	0.0062	2.6E-02
3	19.2	4.9	0.44	0.0111	2.6E-02
4	19.2	6.9	0.62	0.0156	2.6E-02



Average coefficient of permeability (@20°C) = 2.6E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 17-Aug-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

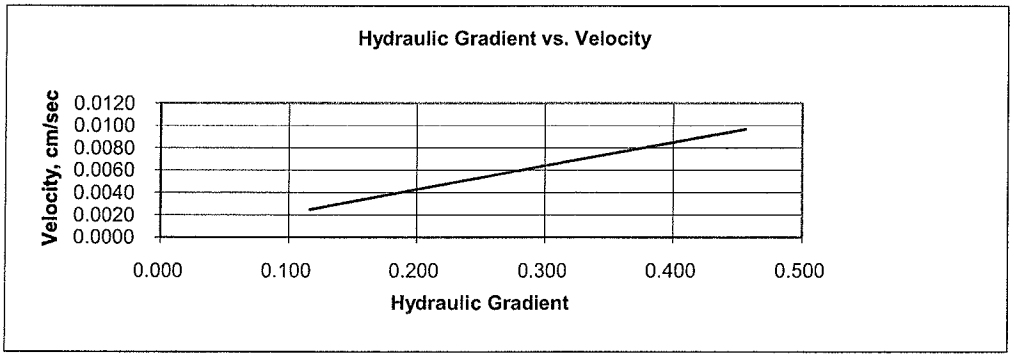
Background Information

Sample No:	GDM-10	Date Sampled:	05-Aug-10
Classification:	Poorly Graded Sand	Date tested:	09-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	109.0	Maximum Density:	NA
Void ratio:	0.52	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.3	1.3	0.12	0.0025	2.2E-02
2	19.3	2.5	0.22	0.0048	2.2E-02
3	19.3	5.1	0.46	0.0097	2.2E-02
4	19.3	7.0	0.63	0.0135	2.2E-02



Average coefficient of permeability (@20°C) = 2.2E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 17-Aug-10

Project Number: SC-09-01367B

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Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
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Sherburne County Generating Plant
Becker, MN

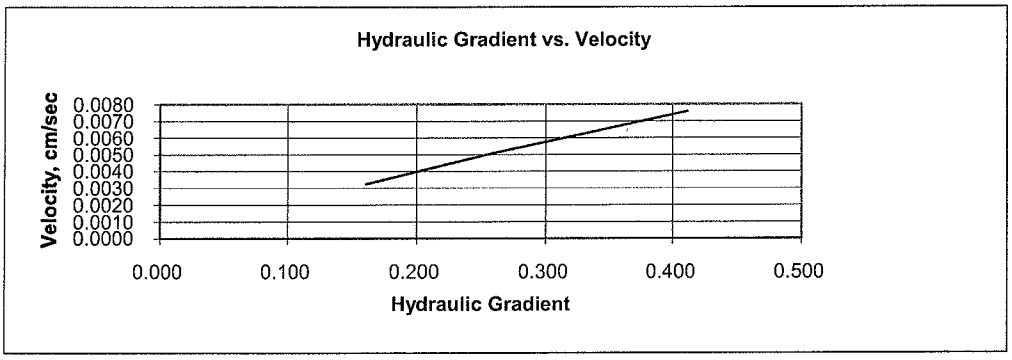
Background Information

Sample No:	GDM-11	Date Sampled:	05-Aug-10
Classification:	Poorly Graded Sand	Date tested:	10-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	109.5	Maximum Density:	NA
Void ratio:	0.51	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.1	1.8	0.16	0.0033	2.1E-02
2	19.1	2.9	0.26	0.0051	2.0E-02
3	19.1	4.6	0.41	0.0076	1.9E-02
4	19.1	7.7	0.69	0.0129	1.9E-02



Average coefficient of permeability (@20°C) = 2.0E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

BRAUN INTERTEC

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Saint Cloud, MN 56301

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Web: brauninertec.com

Constant Head Permeability-ASTM D2434

Date: 17-Aug-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

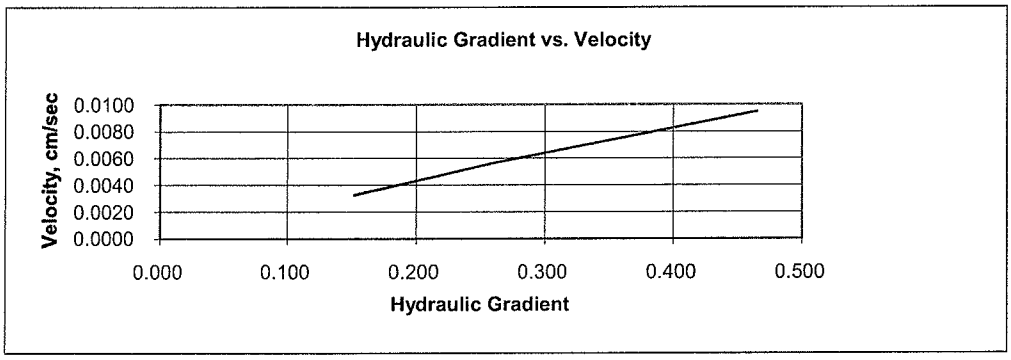
Background Information

Sample No:	GDM-12	Date Sampled:	05-Aug-10
Classification:	Poorly Graded Sand	Date tested:	10-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	110.2	Maximum Density:	NA
Void ratio:	0.50	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.0	1.7	0.15	0.0033	2.2E-02
2	19.0	2.9	0.26	0.0056	2.2E-02
3	19.0	5.2	0.47	0.0095	2.1E-02
4	19.0	9.1	0.81	0.0161	2.0E-02



Average coefficient of permeability (@20°C) = 2.1E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

AA/EOE

BRAUN INTERTEC

Braun Intertec Corporation
3900 Roosevelt Road
Suite 113
Saint Cloud, MN 56301

Phone: 320.253.9940
Fax: 320.253.3054
Web: braunintertec.com

Constant Head Permeability-ASTM D2434

Date: 17-Aug-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

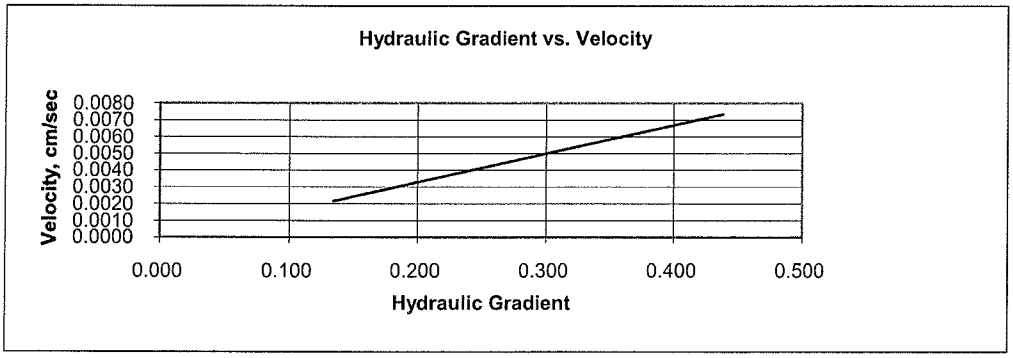
Background Information

Sample No:	GDM-13	Date Sampled:	05-Aug-10
Classification:	Poorly Graded Sand	Date tested:	11-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	110.2	Maximum Density:	NA
Void ratio:	0.50	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.0	1.5	0.13	0.0022	1.7E-02
2	19.0	2.5	0.22	0.0037	1.7E-02
3	19.0	4.9	0.44	0.0074	1.7E-02
4	19.0	8.8	0.79	0.0129	1.7E-02



Average coefficient of permeability (@20°C) = 1.7E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

BRAUN INTERTEC

Braun Intertec Corporation
3900 Roosevelt Road
Suite 113
Saint Cloud, MN 56301

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Web: braunintertec.com

Constant Head Permeability-ASTM D2434

Date: 17-Aug-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

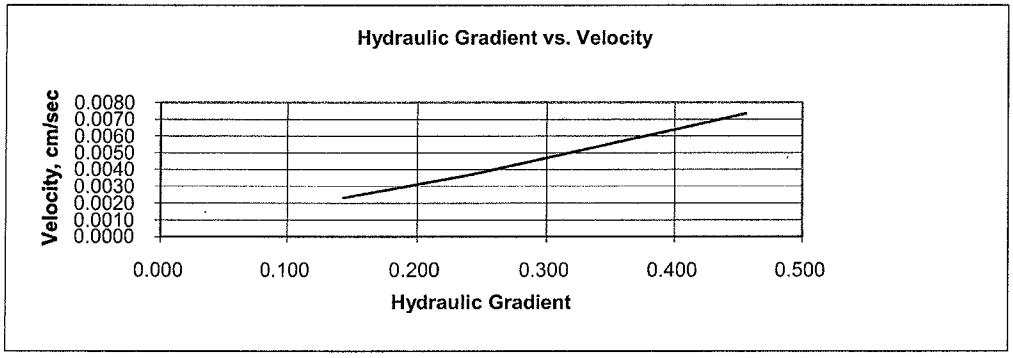
Background Information

Sample No:	GDM-14	Date Sampled:	05-Aug-10
Classification:	Poorly Graded Sand	Date tested:	11-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	111.0	Maximum Density:	NA
Void ratio:	0.49	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.4	1.6	0.14	0.0023	1.7E-02
2	19.4	2.7	0.24	0.0037	1.6E-02
3	19.4	5.1	0.46	0.0074	1.6E-02
4	19.4	9.4	0.84	0.0129	1.6E-02



Average coefficient of permeability (@20°C) = 1.6E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

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3900 Roosevelt Road
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Constant Head Permeability-ASTM D2434

Date: 17-Aug-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

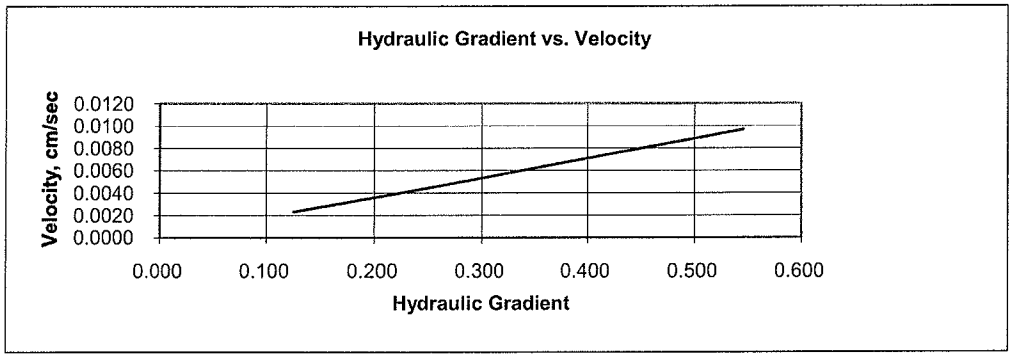
Background Information

Sample No:	GDM-15	Date Sampled:	05-Aug-10
Classification:	Poorly Graded Sand	Date tested:	12-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	111.5	Maximum Density:	NA
Void ratio:	0.48	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.2	1.4	0.13	0.0023	1.9E-02
2	19.2	3.2	0.29	0.0051	1.8E-02
3	19.2	6.1	0.55	0.0097	1.8E-02
4	19.2	10.1	0.90	0.0147	1.7E-02



Average coefficient of permeability (@20°C) = 1.8E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

BRAUN INTERTEC

Braun Intertec Corporation
3900 Roosevelt Road
Suite 113
Saint Cloud, MN 56301

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Constant Head Permeability-ASTM D2434

Date: 17-Aug-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

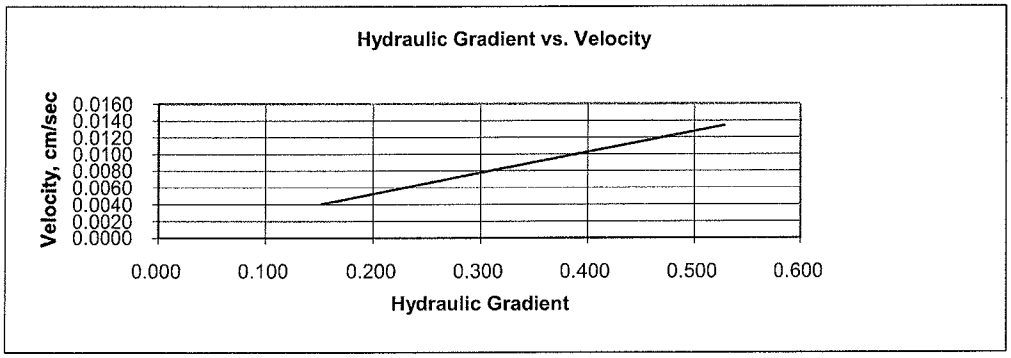
Background Information

Sample No:	GDM-16	Date Sampled:	05-Aug-10
Classification:	Poorly Graded Sand	Date tested:	12-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	109.5	Maximum Density:	NA
Void ratio:	0.51	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.1	1.7	0.15	0.0041	2.7E-02
2	19.1	3.1	0.28	0.0072	2.7E-02
3	19.1	5.9	0.53	0.0134	2.6E-02
4	19.1	9.5	0.85	0.0214	2.6E-02



Average coefficient of permeability (@20°C) = 2.7E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 17-Aug-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

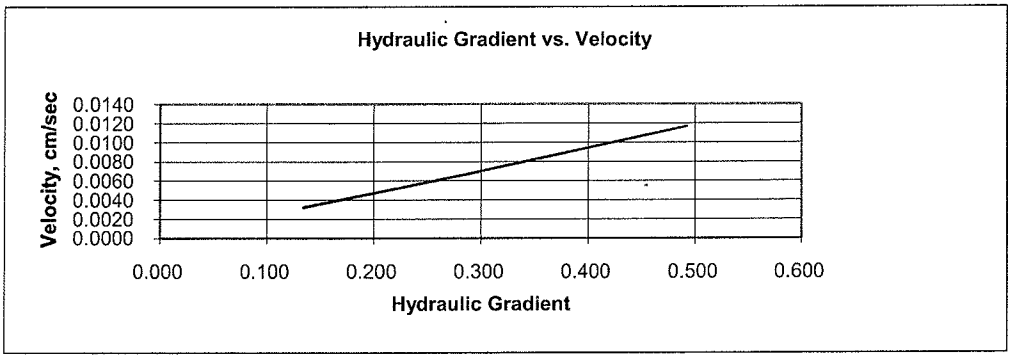
Background Information

Sample No:	GDM-17	Date Sampled:	05-Aug-10
Classification:	Poorly Graded Sand	Date tested:	13-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	109.9	Maximum Density:	NA
Void ratio:	0.50	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.2	1.5	0.13	0.0033	2.5E-02
2	19.2	3.2	0.29	0.0067	2.4E-02
3	19.2	5.5	0.49	0.0117	2.4E-02
4	19.2	8.9	0.80	0.0190	2.4E-02



Average coefficient of permeability (@20°C) = 2.4E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 17-Aug-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

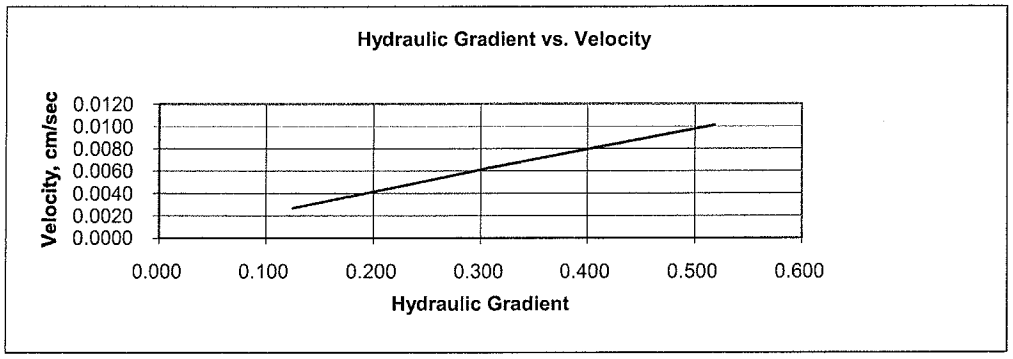
Background Information

Sample No:	GDM-18	Date Sampled:	05-Aug-10
Classification:	Poorly Graded Sand	Date tested:	13-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	109.6	Maximum Density:	NA
Void ratio:	0.51	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.0	1.4	0.13	0.0027	2.2E-02
2	19.0	3.4	0.30	0.0062	2.1E-02
3	19.0	5.8	0.52	0.0101	2.0E-02
4	19.0	9.2	0.82	0.0171	2.1E-02



Average coefficient of permeability (@20°C) = 2.1E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 17-Aug-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

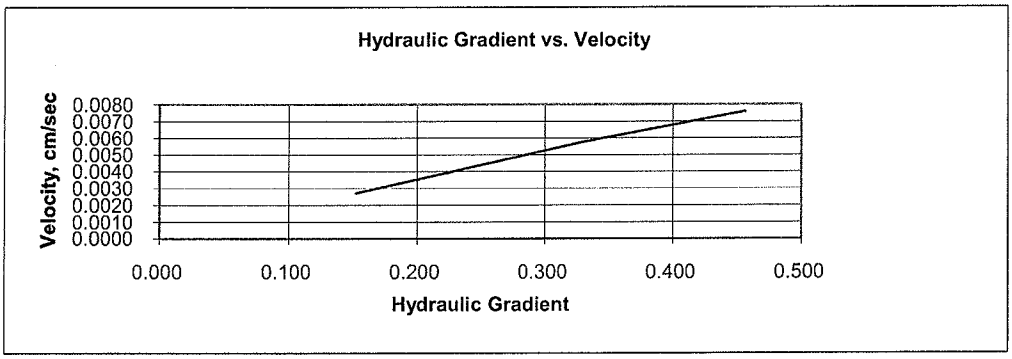
Background Information

Sample No:	GDM-19	Date Sampled:	06-Aug-10
Classification:	Poorly Graded Sand	Date tested:	16-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	108.9	Maximum Density:	NA
Void ratio:	0.52	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	18.9	1.7	0.15	0.0027	1.8E-02
2	18.9	3.7	0.33	0.0058	1.8E-02
3	18.9	5.1	0.46	0.0076	1.7E-02
4	18.9	8.8	0.79	0.0129	1.7E-02



Average coefficient of permeability (@20°C) = 1.8E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 17-Aug-10

Project Number: SC-09-01367B

Client: Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO 80202

Project: Pond 3 South Construction
Phase II
Sherburne County Generating Plant
Becker, MN

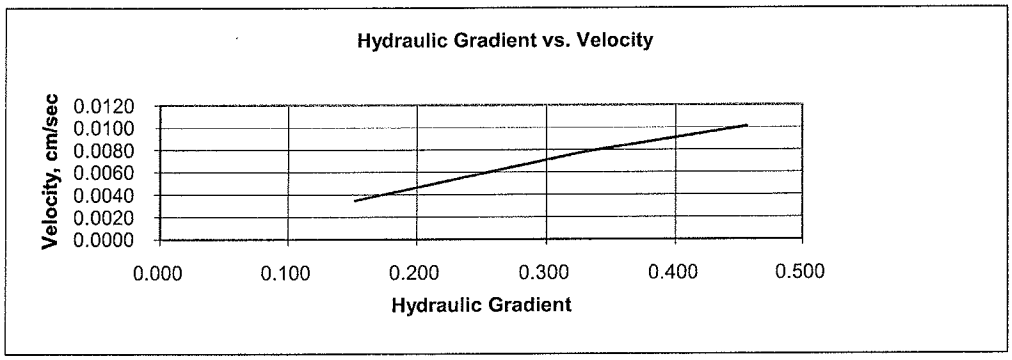
Background Information

Sample No:	GDM-20	Date Sampled:	06-Aug-10
Classification:	Poorly Graded Sand	Date tested:	16-Aug-10
Sample Location:	NA	Sampled by:	Brett Gruber
Sample type:	Remold	Depth:	NA

Test Results

Dry Density(pcf):	109.8	Maximum Density:	NA
Void ratio:	0.51	% of Maximum:	NA
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	19.0	1.7	0.15	0.0035	2.4E-02
2	19.0	3.7	0.33	0.0079	2.4E-02
3	19.0	5.1	0.46	0.0101	2.3E-02
4	19.0	8.8	0.79	0.0166	2.2E-02



Average coefficient of permeability (@20°C) = 2.3E-02 cm/sec

Remarks:

Thomas L Henkemeyer
Project Manager

Filter Aggregate Test Reports

Coarse Filter Aggregate Gradation Test Reports
Fine Filter Aggregate Gradation Test Reports
Filter Aggregate Calculations

Coarse Filter Aggregate Gradation Test Reports

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-000795-S6
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 5/27/2010

Sample Details

Sample ID:	W10-000795-S6
Alternate Sample ID:	CFA-1
Sampled By:	Adam Jelinski
Sampling Method:	ASTM D75/AASHTO T2/MnDOT 1002 Stockpile
Date Sampled:	5/26/2010
Date Submitted:	5/26/2010
Specification:	Coarse Filter Aggregate - MnDOT 3149
Source:	Onsite material
Material Type:	Coarse Filter Aggregate
Sample Location:	On-site Stockpile

Other Test Results

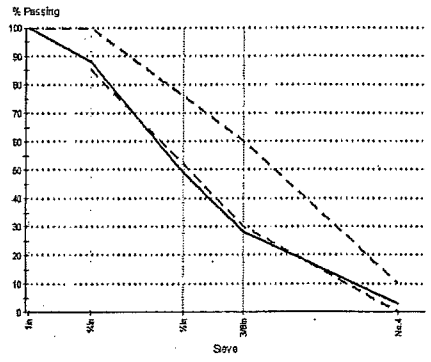
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06
Drying by: Natural
Date Tested: 5/27/2010

Sieve Size	% Passing	Limits
1in (25.0mm)	100	=100
¾in (19.0mm)	88	80 - 100
½in (12.5mm)	49	
3/8in (9.5mm)	28*	35 - 60
No.4 (4.75mm)	3	0 – 10

Chart



Comments

* = Result does not meet the specification

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BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-000795-S7
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 5/27/2010

Sample Details

Sample ID:	W10-000795-S7
Alternate Sample ID:	CFA-2
Sampled By:	Adam Jelinski
Sampling Method:	ASTM D75/AASHTO T2/MnDOT 1002 Stockpile
Date Sampled:	5/26/2010
Date Submitted:	5/26/2010
Specification:	Coarse Filter Aggregate - MnDOT 3149
Source:	Onsite material
Material Type:	Coarse Filter Aggregate
Sample Location:	On-site Stockpile

Other Test Results

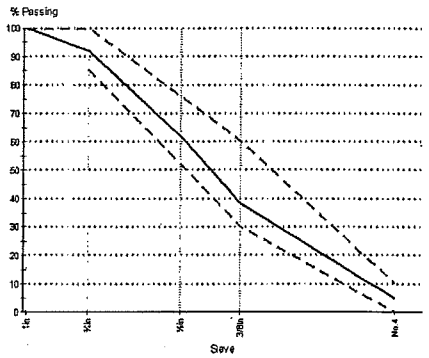
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06
Drying by: Natural
Date Tested: 5/27/2010

Sieve Size	% Passing	Limits
1in (25.0mm)	100	=100
¾in (19.0mm)	92	80 - 100
½in (12.5mm)	62	
3/8in (9.5mm)	38	35 - 60
No.4 (4.75mm)	5	0 – 10

Chart



Comments

N/A

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BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-000874-S1
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 6/3/2010

Sample Details

Sample ID: W10-000874-S1
Alternate Sample ID: CFA-3
Sampled By: Contractor
Sampling Method:
Date Sampled: 5/28/2010
Date Submitted: 6/2/2010
Specification: SC-09-01367B Coarse Filter Aggregate - Project
Source:
Material Type:
Sample Location: In Place/NW Corner

Other Test Results

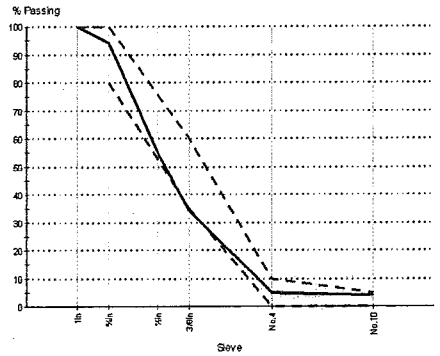
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06
Drying by: Natural
Date Tested: 6/3/2010

Sieve Size	% Passing	Limits
1in (25.0mm)	100	=100
¾in (19.0mm)	94	80 – 100
½in (12.5mm)	55	
3/8in (9.5mm)	34*	35 – 60
No.4 (4.75mm)	5	0 – 10
No.10 (2.0mm)	4	0 – 5

Chart



Comments

* = Result does not meet the specification

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BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001535-S1
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 7/21/2010

Sample Details

Sample ID:	W10-001535-S1
Alternate Sample ID:	CFA-4
Sampled By:	Client
Sampling Method:	ASTM D75/AASHTO T2/MnDOT 1002 Stockpile
Date Sampled:	7/15/2010
Date Submitted:	7/19/2010
Specification:	SC-09-01367B Coarse Filter Aggregate - Project
Source:	Onsite material
Material Type:	Coarse Filter Aggregate
Sample Location:	Stockpile

Other Test Results

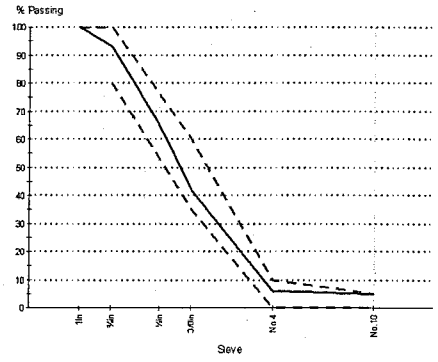
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 7/21/2010

Sieve Size	% Passing	Limits
1in (25.0mm)	100	=100
¾in (19.0mm)	93	80 – 100
½in (12.5mm)	65	
3/8in (9.5mm)	42	35 – 60
No.4 (4.75mm)	6	0 – 10
No.10 (2.0mm)	5	0 – 5

Chart



Comments

N/A

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BRAUN INTERTEC
Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001762-S6
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Jason Limley

Date of Issue: 8/4/2010

Sample Details

Sample ID: W10-001762-S6
Alternate Sample ID: CFA 5
Sampled By:
Sampling Method:
Date Sampled: 7/27/2010
Date Submitted: 8/2/2010
Specification: SC-09-01367B Coarse Filter Aggregate - Project
Source:
Material Type:
Sample Location:

Other Test Results

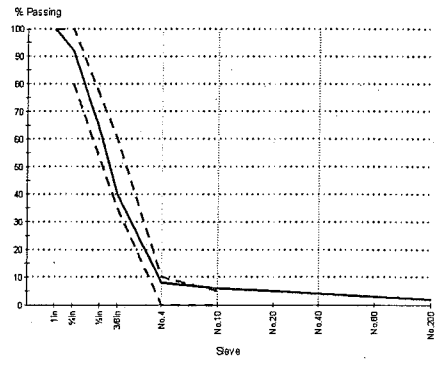
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 8/4/2010

Sieve Size	% Passing	Limits
1in (25.0mm)	100	=100
¾in (19.0mm)	92	80 – 100
½in (12.5mm)	63	
3/8in (9.5mm)	40	35 – 60
No.4 (4.75mm)	8	0 – 10
No.10 (2.0mm)	6*	0 – 5
No.20 (850µm)	5	
No.40 (425µm)	4	
No.80 (180µm)	3	
No.200 (75µm)	2.0	

Chart



Comments

* = Result does not meet the specification

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Fine Filter Aggregate Gradation Test Reports

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-000795-S4
Issue No: 2

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202
Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308
PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 6/1/2010

Sample Details

Sample ID:	W10-000795-S4
Alternate Sample ID:	FFA-1
Sampled By:	Adam Jelinski
Sampling Method:	ASTM D75/AASHTO T2/MnDOT 1002 Stockpile
Date Sampled:	5/26/2010
Date Submitted:	5/26/2010
Specification:	SC-09-01367B Fine Filter Aggregate - Project
Source:	Onsite material
Material Type:	Fine Filter Aggregate
Sample Location:	On-site Stockpile

Other Test Results

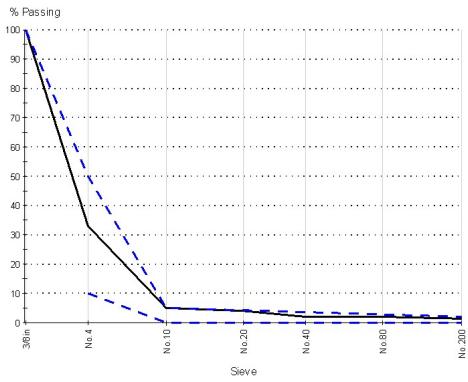
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 5/28/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	33	10 – 50
No.10 (2.0mm)	5	0 – 5
No.20 (850µm)	4	
No.40 (425µm)	2	
No.80 (180µm)	2	
No.200 (75µm)	1.2	0 – 2

Chart



Comments

N/A

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Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Material Test Report

Report No: MAT:W10-000795-S5
Issue No: 2

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202
Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308
PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 6/1/2010

Sample Details

Sample ID:	W10-000795-S5
Alternate Sample ID:	FFA-2
Sampled By:	Adam Jelinski
Sampling Method:	ASTM D75/AASHTO T2/MnDOT 1002 Stockpile
Date Sampled:	5/26/2010
Date Submitted:	5/26/2010
Specification:	SC-09-01367B Fine Filter Aggregate - Project
Source:	Onsite material
Material Type:	Fine Filter Aggregate
Sample Location:	On-site Stockpile

Other Test Results

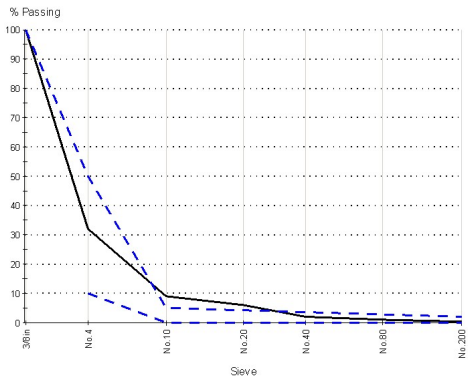
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 5/28/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	32	10 – 50
No.10 (2.0mm)	9*	0 – 5
No.20 (850µm)	6	
No.40 (425µm)	2	
No.80 (180µm)	1	
No.200 (75µm)	0.5	0 – 2

Chart



Comments

* = Result does not meet the specification

(c) 2000-2009 QESTLab by SpectraQEST.com

BRAUN INTERTEC

Material Test Report

Minneapolis Laboratory
Braun Intertec Corporation
Phone: (320) 253-9940

Report No: MAT:W10-001535-S2
Issue No: 1

Client: Travis Peterson
Xcel Energy Services, Inc.
Facility Code SHC-1
Denver, CO, 80202

Project: SC-09-01367B
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, MN, 55308

PM: Thomas L Henkemeyer, thenkemeyer@BraunIntertec.com

Dallas Miner
Aggregate Laboratory Supervisor
Date of Issue: 7/21/2010

Sample Details

Sample ID:	W10-001535-S2
Alternate Sample ID:	FFA-3
Sampled By:	Client
Sampling Method:	ASTM D75/AASHTO T2/MnDOT 1002 Stockpile
Date Sampled:	7/15/2010
Date Submitted:	7/19/2010
Specification:	SC-09-01367B Fine Filter Aggregate - Project
Source:	Onsite material
Material Type:	Fine Filter Aggregate
Sample Location:	Stockpile

Other Test Results

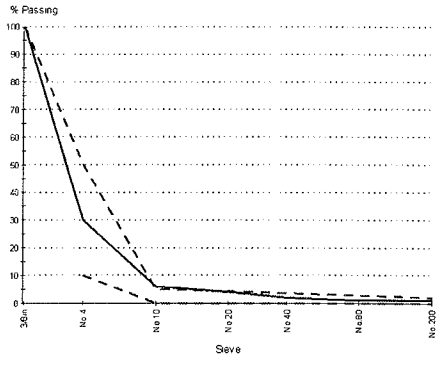
Description	Method	Result	Limits

Particle Size Distribution

Method: ASTM C 136 - 06, ASTM C 117 - 04
Drying by: Oven
Date Tested: 7/21/2010

Sieve Size	% Passing	Limits
3/8in (9.5mm)	100	=100
No.4 (4.75mm)	30	10 – 50
No.10 (2.0mm)	6*	0 – 5
No.20 (850µm)	4	
No.40 (425µm)	2	
No.80 (180µm)	1	
No.200 (75µm)	1.0	0 – 2

Chart



Comments

* = Result does not meet the specification

(c) 2000-2009 QESTLab by SpectraQEST.com

Filter Aggregate Calculations

McCain and Associates, Inc.

Name: DJR Date: 1/6/2011
Project: POND 35 No,
Desc. FILTER AGG ANALYSIS
Checked By: Sheet 1 of 2

Check piping for Fine & Coarse Agg from OFF-site source
(See attached gradations & grain size curve)

For Piping

① $D_{15} \leq 5\, d_{85}$

$D_{15} = D_{15\,CFA}$

$d_{85} = d_{85\,FFA}$

$$\frac{D_{15\,CFA}}{d_{85\,FFA}} \leq 5$$

$D_{15\,CFA\,(MAX)} = 8.0\,mm$

$d_{85\,FFA\,(MIN)} = 8.5\,mm$

$$\frac{D_{15CFA}}{d_{85FFA}} = \frac{8.0}{8.5} = 0.94 < 5$$

OK ✓

② $$\frac{D_{50\,CFA}}{d_{50\,FFA}} \leq 25$$

$D_{50\,CFA\,MAX} = 10.5\,mm$

$d_{50\,FFA\,MIN} = 6.0\,mm$

$$\frac{D_{50\,CFA}}{d_{50\,FFA}} = \frac{10.5}{6.0} = 1.75 < 25$$ OK ✓

CHECK PIPE PERFORATIONS

$$\frac{D_{50\,CFA}}{\text{dia pipe perf}} > 1.0$$

$D_{50\,CFA\,MIN} = 10.5\,mm$

Dia. pipe perf. $= 9.5\,mm$

$$\frac{10.5}{9.5} > 1$$ OK ✓

McCain and Associates, Inc.

Name: DTR Date: 1/6/2011
Project: POND 3S No,
Desc. FILTER AGG ANALYSIS
Checked By: Sheet 2 of 2

CHECK PIPING FOR GDM & FINE AGG

$D_{15\,FFA\,(MAX)} = 3.5\,mm$, $d_{85\,GDM\,(MIN)} = 1.5\,mm$

$$\frac{D_{15\,FFA(MAX)}}{d_{85\,GDM(MIN)}} = \frac{3.5\,mm}{1.5\,mm} = 2.3 < 5 \quad OK \checkmark$$

$D_{50\,FFA\,(MAX)} = 6.0mm$

$d_{50\,GDM\,(MIN)} = 0.55mm$

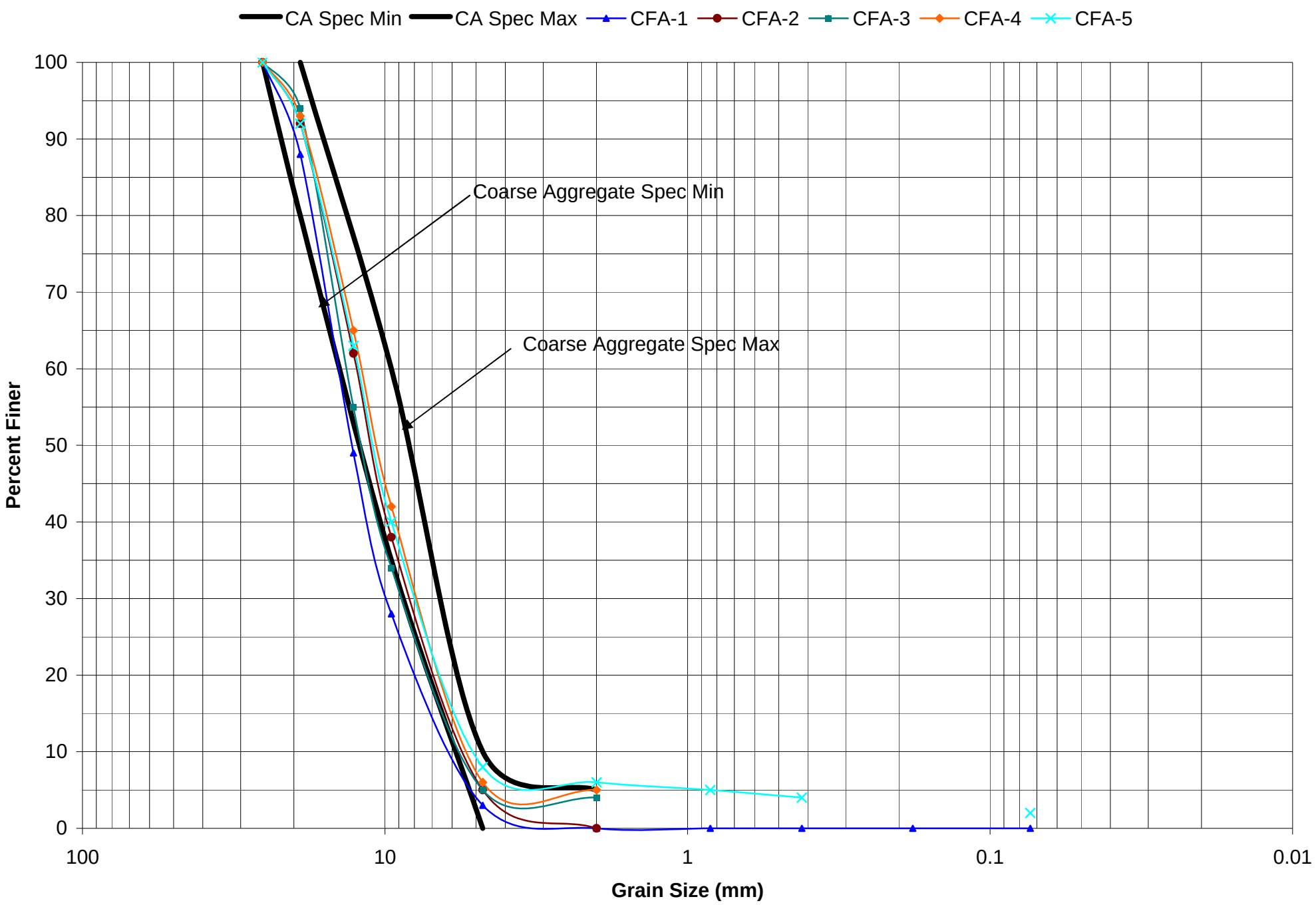
$$\frac{D_{50}}{d_{50}} = \frac{6}{0.55} = 10.9 < 25 \quad OK \checkmark$$

Sherco Pond 3S Pipe Filter Aggregate Analysis

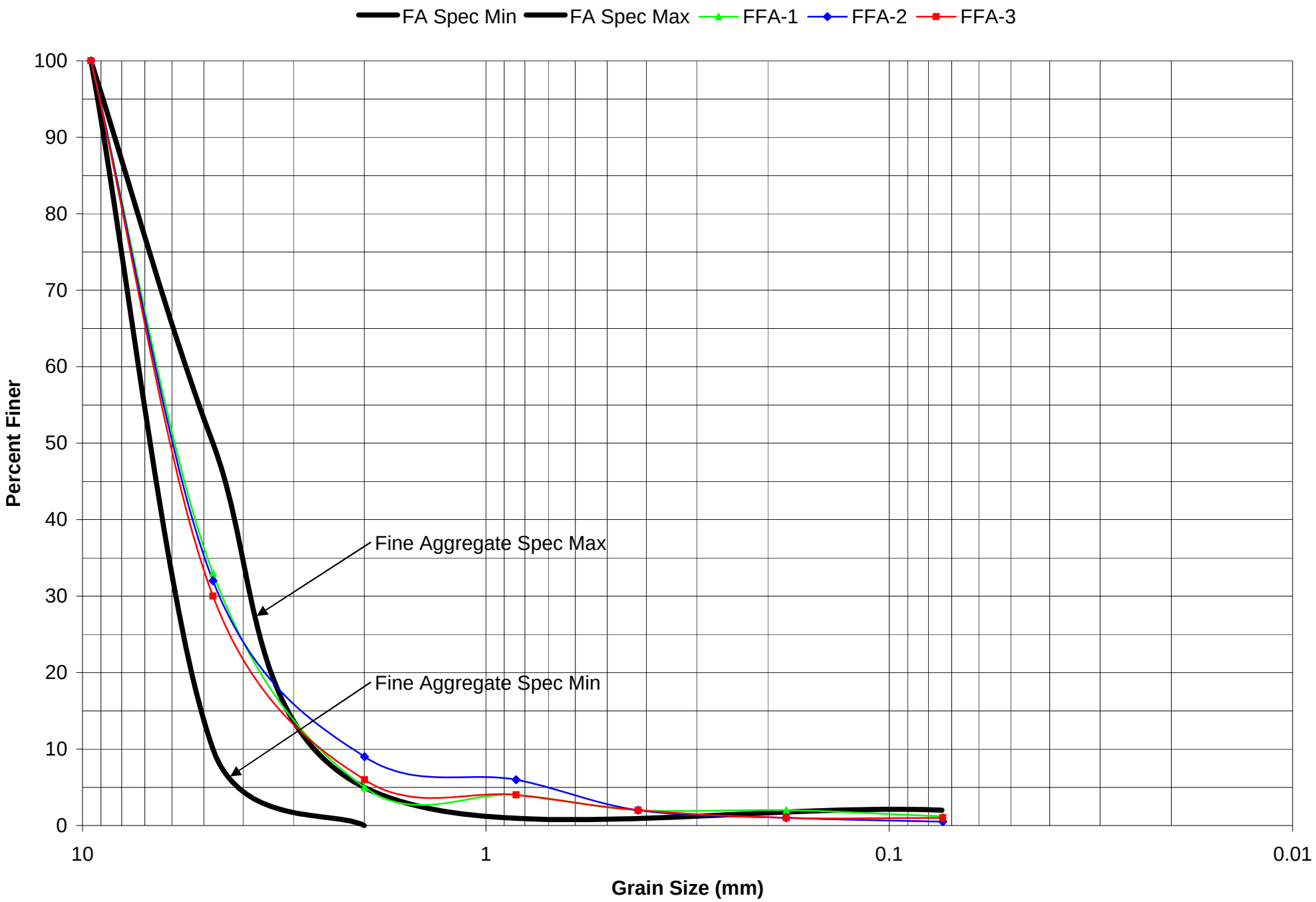
Coarse Aggregate Gradations											
		CFA-1		CFA-2		CFA-3		CFA-4		CFA-5	
Sieve	Opening (mm)	(% passing)	Meet spec.?	(% passing)	Meet spec.?	(% passing)	Meet spec.?	(% passing)	Meet spec.?	(% passing)	Meet spec.?
1"	25.4	100	yes	100	yes	100	yes	100	yes	100	yes
3/4"	19.1	88	yes	92	yes	94	yes	93	yes	92	yes
1/2"	12.7	49	---	62	---	55	---	65	---	63	---
3/8"	9.53	28	NO	38	yes	34	NO	42	yes	40	yes
#4	4.75	3	yes	5	yes	5	yes	6	yes	8	yes
#10	2.00	---	yes	---	yes	4	yes	5	yes	6	NO
#20	0.841	---	---		---		---		---	5	---
#40	0.419	---	---		---		---		---	4	---
#80	0.180	---	---		---		---		---		---
#200	0.074	---	---		---		---		---	2.0	---

Fine Aggregate Gradations							
		FFA-1		FFA-2		FFA-3	
Sieve	Opening (mm)	(% passing)	Meet spec.?	(% passing)	Meet spec.?	(% passing)	Meet spec.?
1"	25.4	---	---	---	---	---	---
3/4"	19.1	---	---	---	---	---	---
5/8"	15.9	---	---	---	---	---	---
1/2"	12.7	---	---	---	---		---
3/8"	9.53	100	yes	100	yes	100	yes
#4	4.75	33	yes	32	yes	30	yes
#10	2.00	5	yes	9	NO	6	NO
#20	0.841	4	---	6	---	4	---
#40	0.419	2	---	2	---	2	---
#80	0.180	2	---	1	---	1	---
#200	0.074	1.2	yes	0.5	yes	1.0	yes

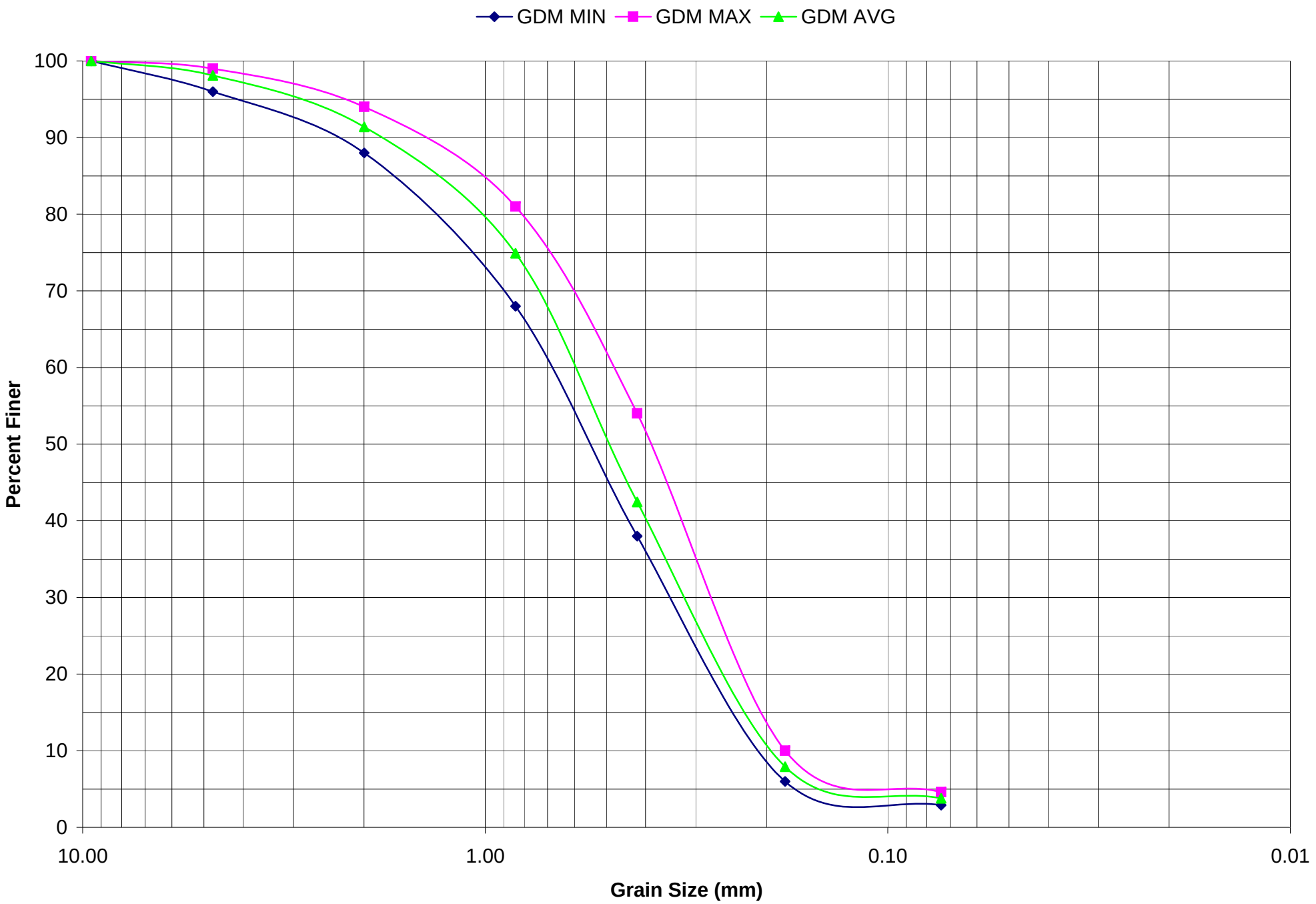
Sherco Pond 3S Pipe Filter Aggregate Analysis
Coarse Aggregate Grain Size Distribution



Sherco Pond 3S Pipe Filter Aggregate Analysis
Fine Aggregate Grain Size Distribution



Sherco Pond 3S Pipe Filter Aggregate Analysis
Granular Drainage Material Size Distribution

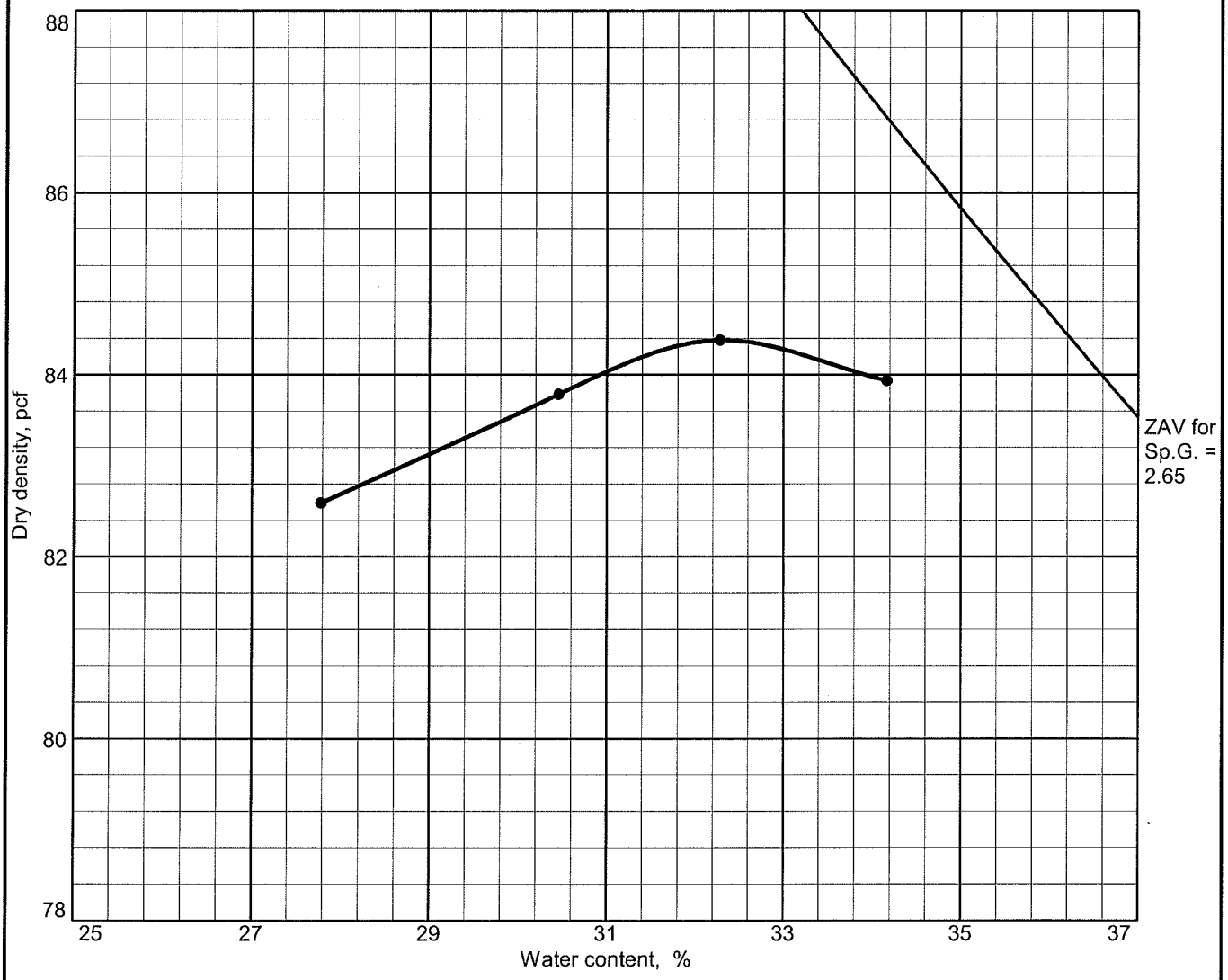


Bottom Ash Test Reports

Bottom Ash Standard Proctor Test Reports
Bottom Ash In-place Density Test Reports

Bottom Ash Standard Proctor Test Reports

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SP			2.65			8	2.7

TEST RESULTS

Maximum dry density = 87.8 pcf

Optimum moisture = 29.8 %

MATERIAL DESCRIPTION

Poorly Graded Sand with Gravel, fine-medium grained, dark grey

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

Project: Pond 3 South Construction

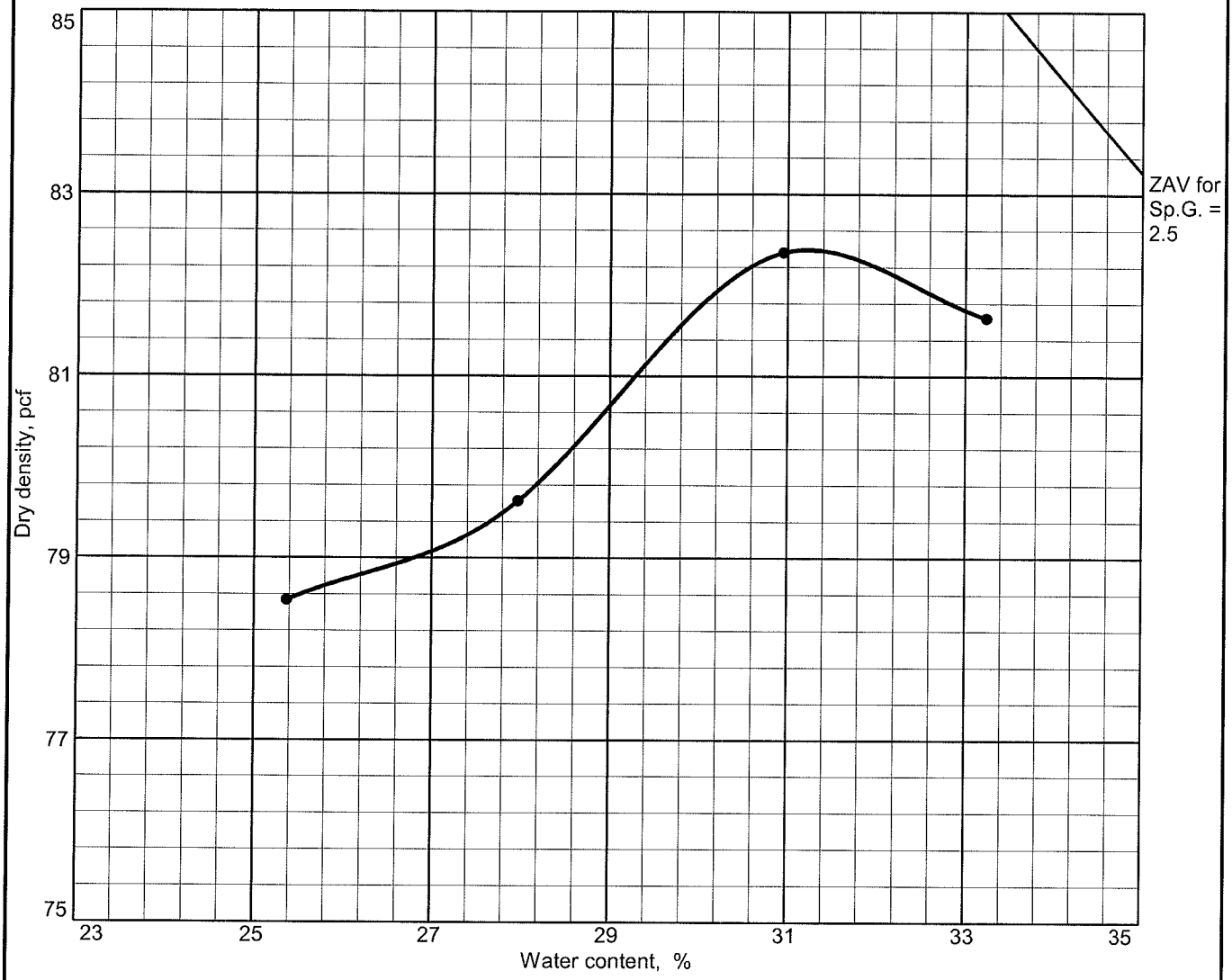
● **Source:** **Sample No.:** P-26 (BAP-1)

Remarks:

Specific Gravity was assumed.
Bottom Ash Pond
9/9/10

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SP-SM			2.5			4	6.4

TEST RESULTS

Maximum dry density = 82.4 pcf

Optimum moisture = 31.2 %

MATERIAL DESCRIPTION

Poorly Graded Sand with Silt, fine-medium grained, grey

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

Project: Pond 3 South Construction

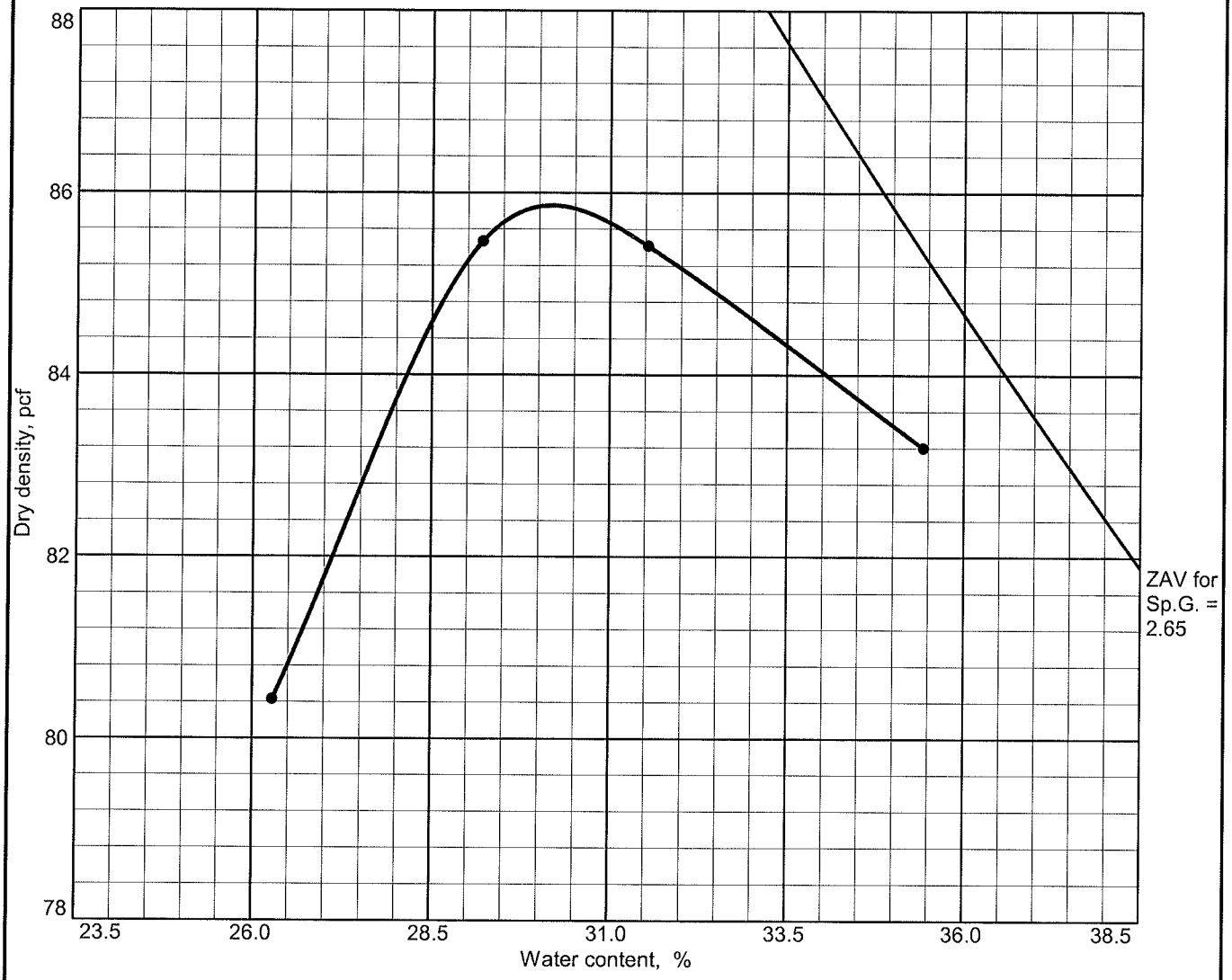
● **Source:** **Sample No.:** P-25 (BAP-2)

Remarks:

Specific Gravity was assumed.
Bottom Ash Pond
9/9/10

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SP			2.65			9	1.1

TEST RESULTS

Maximum dry density = 89.7 pcf

Optimum moisture = 27.5 %

MATERIAL DESCRIPTION

Poorly Graded Sand with Gravel, fine-medium grained, dark grey

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

Project: Pond 3 South Construction

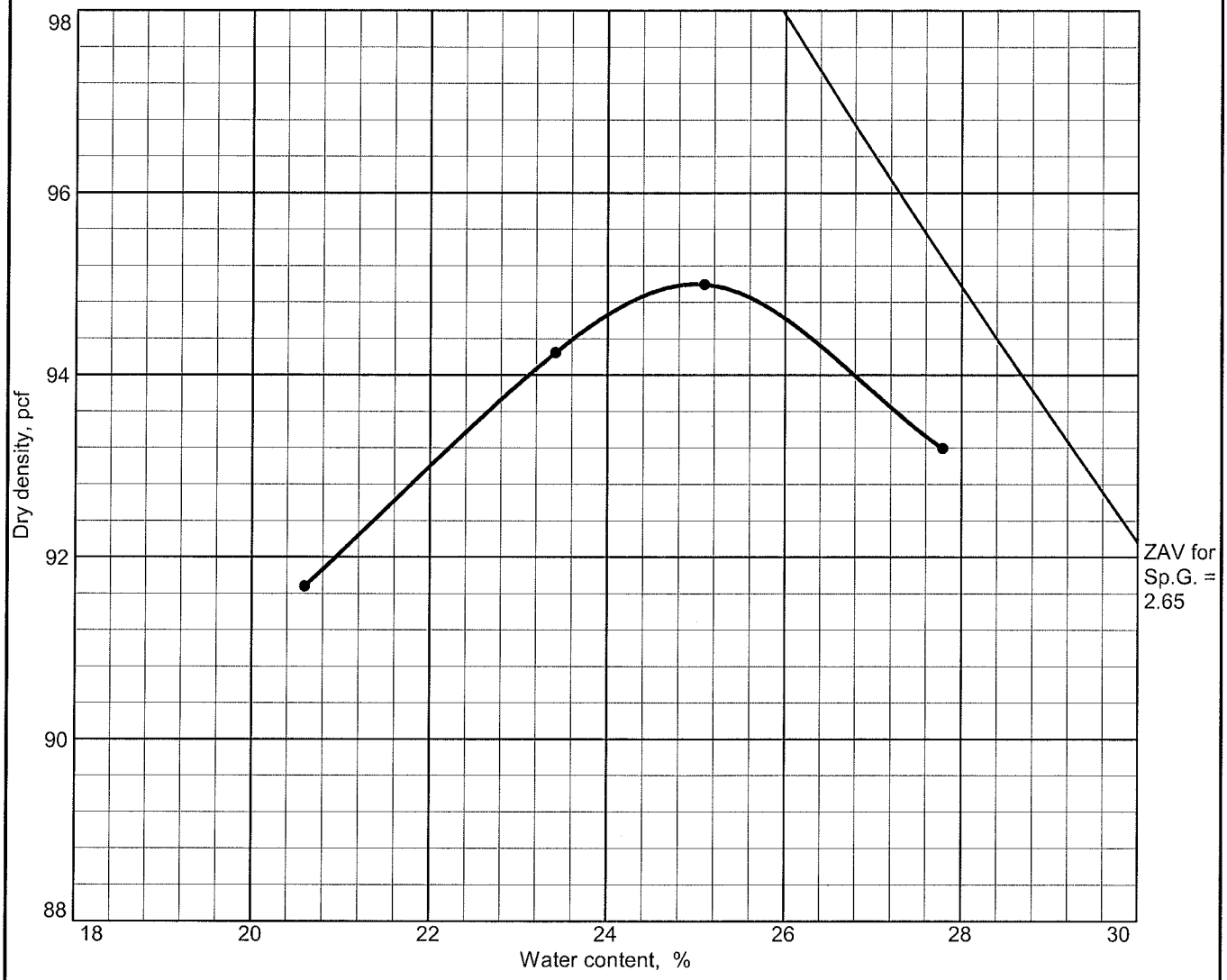
● **Source:** **Sample No.:** P-24 (BAP-3)

Remarks:

Specific Gravity was assumed.
Bottom Ash Pond
9/9/10

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SP			2.65			8.0	2.7

TEST RESULTS

Maximum dry density = 98.3 pcf

Optimum moisture = 23.0 %

MATERIAL DESCRIPTION

Poorly Graded Sand with Gravel, fine-medium grained, dark grey

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

Project: Pond 3 South Construction

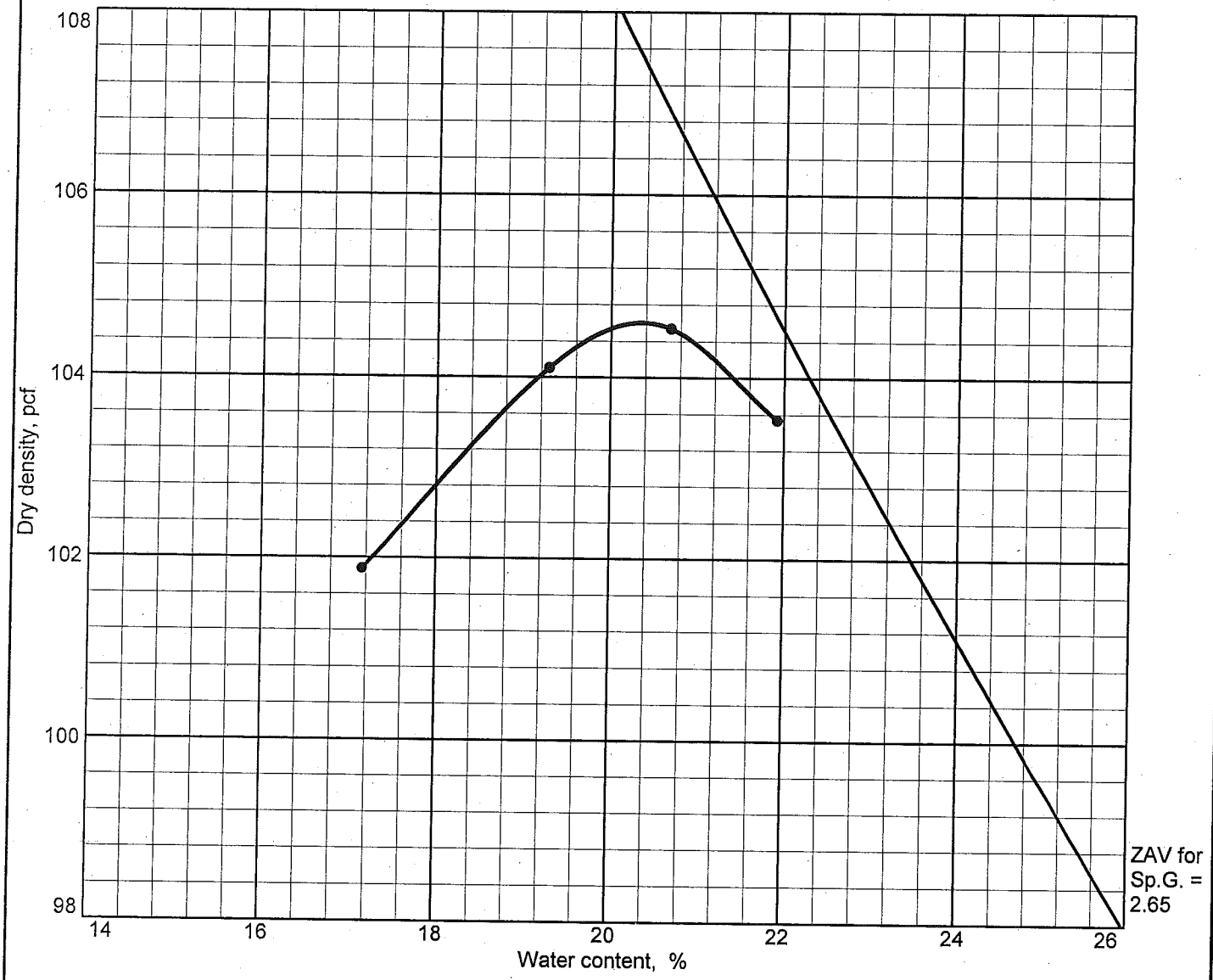
● **Source:** **Sample No.:** P-27 (BAP-4)

Remarks:

Specific Gravity was assumed.
In Place Bottom Ash
9/22/10

BRAUN INTERTEC

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SP-SM			2.65			13.0	6.8

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 109.9 pcf Optimum moisture = 17.8 %	Bottom Ash

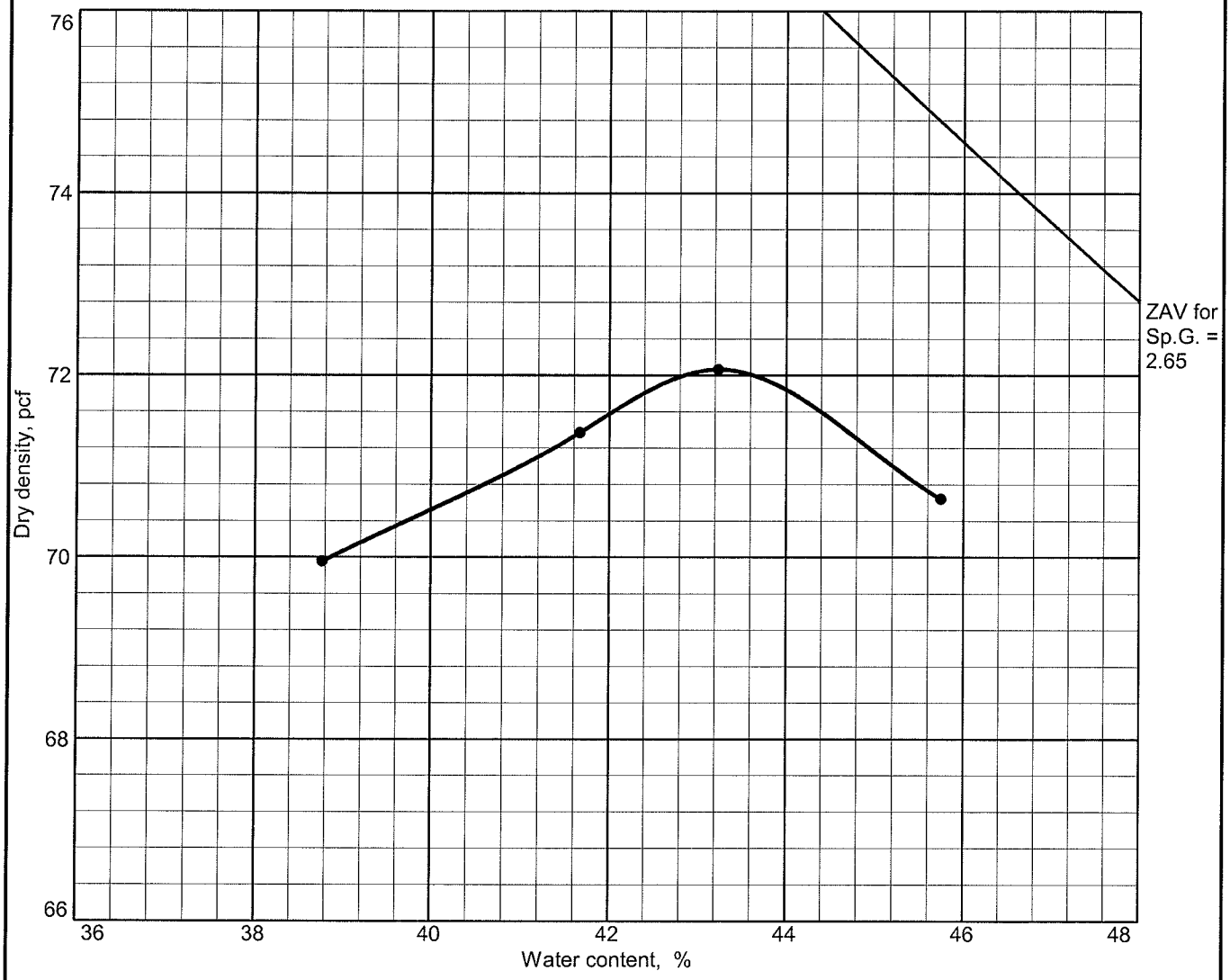
Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.
Project: Pond 3 South Construction

● **Source:** **Sample No.:** P-28 (BAP-5)

BRAUN INTERTEC

Remarks:
Specific Gravity was assumed.
ELEV= 980 N.863252 E. 2031896
10/13/10

Moisture-Density Relationship



Test specification: ASTM D 698-07e1 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	SM			2.65				15.8

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 72.1 pcf Optimum moisture = 43.2 %	Bottom Ash

Project No.: SC-09-01367B **Client:** Xcel Energy Services, Inc.

Project: Pond 3 South Construction

● **Source:** **Sample No.:** P-29 (BAP-6)

Remarks:

Specific Gravity was assumed.
N. 862442 E. 2031252 Elev: 983.5
10/20/10

BRAUN INTERTEC

Bottom Ash In-place Density Test Reports

BRAUN INTERTEC

Braun Intertec Corporation
3900 Roosevelt Road
Suite 113
Saint Cloud, MN 56301

Phone: 320.253.9940
Fax: 320.253.3054
Web: brauninterteC.com

Report of Field Compaction Tests

Date: September 23, 2010 **Project:** SC-09-01367B **Report:** 1

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
BA-1	9/21/10	N	BAP-4	23.0	98.3	2.6	98.1	100	95	A
BA-2	9/21/10	N	BAP-3	27.5	89.7	4.5	89.6	100	95	A
BA-3	9/21/10	N	BAP-4	23.0	98.3	3.0	103.2	105	95	A
BA-4	9/23/10	N	BAP-1	29.8	87.8	9.0	89.9	102	95	A
BA-5	9/23/10	N	BAP-2	31.2	82.4	13.0	82.5	100	95	A
BA-6	9/23/10	N	BAP-1	29.8	87.8	8.6	86.1	98	95	A
BA-7	9/28/10	N	BAP-4	23.0	98.3	2.4	101.0	103	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
BA-1	N 862529, E 2031112	971
BA-2	N 862511, E 2030858	971
BA-3	N 862505, E 2031267	971.5
BA-4	N 862519, E 2031502	972
BA-5	N 862486, E 2031687	972 1/2
BA-6	N 862569, E 2031343	972
BA-7	N 862460, E 2030916	976 1/2

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

BRAUN INTERTEC

Braun Intertec Corporation
3900 Roosevelt Road
Suite 113
Saint Cloud, MN 56301

Phone: 320.253.9940
Fax: 320.253.3054
Web: braunintertec.com

Report of Field Compaction Tests

Date: October 20, 2010 **Project:** SC-09-01367B **Report:** 2

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
BA-8	9/28/10	N	BAP-3	27.5	89.7	4.4	91.4	102	95	A
BA-9	9/30/10	N	BAP-3	27.5	89.7	17.2	93.4	104	95	A
BA-10	9/30/10	N	BAP-2	31.2	82.4	14.9	78.0	95	95	A
BA-11	9/30/10	N	BAP-2	31.2	82.4	6.0	78.0	95	95	A
BA-12	9/30/10	N	BAP-4	23.0	98.0	8.6	102.1	104	95	A
BA-13	10/5/10	N	BAP-3	27.5	89.7	11.1	91.5	102	95	A
BA-14	10/5/10	N	BAP-3	27.5	89.7	11.3	93.1	104	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
BA-8	N 862580, E 2031765	973
BA-9	N 862554, E 2031653	975 1/2
BA-10	N 862565, E 2031524	975
BA-11	N 862489, E 2031419	976 1/2
BA-12	N 862547, E 2031249	974 1/2
BA-13	N 862686, E 2031939	974 1/2
BA-14	N 862867, E 2031940	974 1/2

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

BRAUN INTERTEC

Braun Intertec Corporation
3900 Roosevelt Road
Suite 113
Saint Cloud, MN 56301

Phone: 320.253.9940
Fax: 320.253.3054
Web: brauninterteC.com

Report of Field Compaction Tests

Date: October 20, 2010

Project: SC-09-01367B

Report: 3

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
BA-15	10/5/10	N	BAP-3	27.5	89.7	8.1	93.5	104	95	A
BA-16	10/5/10	N	BAP-1	29.8	87.8	6.9	88.5	101	95	A
BA-17	10/7/10	N	BAP-3	27.5	89.7	8.1	90.1	100	95	A
BA-18	10/7/10	N	BAP-3	27.5	89.7	5.1	91.2	102	95	A
BA-19	10/7/10	N	BAP-2	31.2	82.4	13.6	78.2	95	95	A
BA-20	10/7/10	N	BAP-4	23.0	98.3	2.4	96.3	98	95	A
BA-21	10/12/10	N	BAP-5	17.8	109.9	3.1	111.3	101	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
BA-15	N 862958, E 2031867	976
BA-16	N 862792, E 2031962	977
BA-17	N 863104, E 2031882	980 1/2
BA-18	N 862802, E 2031889	976 1/2
BA-19	N 863033, E 2031974	982
BA-20	N 862501, E 2030949	979
BA-21	N 863252, E 2031896	980

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: October 20, 2010 **Project:** SC-09-01367B **Report:** 4

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
BA-22	10/12/10	N	BAP-4	23.0	98.3	8.6	99.7	101	95	A
BA-23	10/12/10	N	BAP-4	23.0	98.3	4.8	102.1	104	95	A
BA-24	10/12/10	N	BAP-1	29.8	87.8	24.6	86.7	99	95	A
BA-25	10/12/10	N	BAP-3	27.5	89.7	9.3	90.7	101	95	A
BA-26	10/19/10	N	BAP-2	31.2	82.4	20.8	84.3	102	95	A
BA-27	10/19/10	N	BAP-2	31.2	82.4	27.1	81.5	99	95	A
BA-28	10/19/10	N	BAP-4	23.0	98.3	4.1	98.2	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
BA-22	N 863328, E 2031951	977 1/2
BA-23	N 862523, E 2031756	979 1/2
BA-24	N 862489, E 2031554	980
BA-25	N 862548, E 2031304	976 1/2
BA-26	N 862492, E 2031534	982 1/2
BA-27	N 862453, E 2031417	983 1/2
BA-28	N 862423, E 2031246	984

Elevation Reference:

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Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: October 20, 2010 **Project:** SC-09-01367B **Report:** 5

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
BA-29	10/19/10	N	BAP-3	27.5	89.7	7.6	89.1	99	95	A
BA-30	10/19/10	N	BAP-2	31.2	82.4	33.3	80.6	98	95	B
BA-31	10/19/10	N	BAP-2	31.2	82.4	13.6	81.2	99	95	A
BA-32	10/19/10	N	BAP-4	23.0	98.3	19.8	95.8	97	95	A
BA-33	10/19/10	N	BAP-3	27.5	89.7	3.3	93.2	104	95	A
BA-34	10/19/10	N	BAP-3	27.5	89.7	14.8	93.2	104	95	A
BA-30A	10/21/10	N	BAP-2	31.2	82.4	27.7	84.0	102	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
BA-29	N 862433, E 2031142	982
BA-30	N 862442, E 2031252	983 1/2
BA-31	N 862481, E 2031611	981
BA-32	N 862479, E 2031818	983
BA-33	N 862886, E 2031909	977 1/2
BA-34	N 863554, E 2031885	976 1/2
BA-30A	N 862442, E 2031252	983 1/2

Elevation Reference:

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Report of Field Compaction Tests

Date: October 26, 2010 **Project:** SC-09-01367B **Report:** 6

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
BA-35	10/21/10	N	BAP-1	29.8	87.8	18.1	85.2	97	95	A
BA-36	10/21/10	N	BAP-3	27.5	89.7	10.4	93.5	104	95	A
BA-37	10/21/10	N	BAP-4	23.0	98.3	14.6	94.0	96	95	A
BA-38	10/21/10	N	BAP-5	17.8	109.9	2.3	105.6	96	95	A
BA-39	10/21/10	N	BAP-4	23.0	98.3	6.2	97.5	99	95	A
BA-40	10/25/10	N	BAP-3	27.5	89	17	88	98	95	A
BA-41	10/25/10	N	BAP-4	23.0	98	98	99	101	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
BA-35	N 863662, E 2031891	976 1/2
BA-36	N 863572, E 2031927	977
BA-37	N 863527, E 2031914	974 1/2
BA-38	N 863372, E 2031927	975
BA-39	N 863410, E 2031867	976
BA-40	N 862479, E 2031067	983
BA-41	N 862443, E 2030981	984

Elevation Reference:

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Report of Field Compaction Tests

Date: October 26, 2010

Project: SC-09-01367B

Report: 7

Client:
Xcel Energy Services, Inc.
Travis Peterson
Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Pond 3 South Construction, Phase II
Sherburne County Generating Plant
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
BA-42	10/25/10	N	BAP-2	31.2	82.4	17.4	85.5	104	95	A
BA-43	10/25/10	N	BAP-2	31.2	82.4	17.2	83.0	101	95	A
BA-44	10/25/10	N	BAP-3	27.5	89.7	14.2	89.9	100	95	A
BA-45	10/25/10	N	BAP-4	23.0	98.3	6.5	98.7	100	95	A
BA-46	10/25/10	N	BAP-2	31.2	82.4	19.5	84.0	102	95	A
BA-47	10/25/10	N	BAP-4	23.0	98.3	6.3	98.9	101	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
BA-42	N 862477, E 2030891	984
BA-43	N 862500, E 2030759	982 1/2
BA-44	N 862533, E 2031198	982
BA-45	N 862579, E 2031929	982
BA-46	N 862715, E 2031968	983 1/2
BA-47	N 862807, E 2031918	982 1/2

Elevation Reference:

c:

Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

Survey Verification Data

Survey Verification Data Tabulation
Survey Verification Drawings

Survey Verification Data Tabulation

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
1111	863,541.93	2,031,742.57	938.32	GRND SUB	938.32	940.51	2.18					
1112	863,542.19	2,031,699.38	939.27	GRND SUB	939.27	941.69	2.42					
1113	863,541.96	2,031,599.54	941.31	GRND SUB	941.31	943.55	2.24					
1114	863,541.80	2,031,499.42	943.24	GRND SUB	943.24	945.41	2.17					
1115	863,542.07	2,031,399.40	945.14	GRND SUB	945.14	947.20	2.05					
1116	863,542.06	2,031,299.53	947.48	GRND SUB	947.48	949.58	2.10					
1117	863,541.97	2,031,199.43	945.42	GRND SUB	945.42	947.48	2.06					
1118	863,542.01	2,031,099.52	943.30	GRND SUB	943.30	945.32	2.02					
1119	863,542.09	2,030,999.54	941.33	GRND SUB	941.33	943.45	2.12					
1120	863,542.04	2,030,899.43	939.29	GRND SUB	939.29	941.35	2.06					
1123	863,441.84	2,030,899.52	939.62	GRND SUB	939.62	941.66	2.04					
1124	863,441.89	2,030,999.57	941.34	GRND SUB	941.34	943.36	2.02					
1125	863,442.19	2,031,099.57	943.35	GRND SUB	943.35	945.41	2.06					
1126	863,441.91	2,031,199.53	945.26	GRND SUB	945.26	947.31	2.05					
1127	863,441.80	2,031,299.42	947.17	GRND SUB	947.17	949.19	2.01					
1128	863,441.88	2,031,399.46	945.18	GRND SUB	945.18	947.33	2.15					
1129	863,442.10	2,031,499.50	943.30	GRND SUB	943.30	945.45	2.15					
1130	863,441.99	2,031,599.47	941.29	GRND SUB	941.29	943.38	2.09					
1131	863,442.05	2,031,699.34	939.33	GRND SUB	939.33	941.36	2.03					
1132	863,442.02	2,031,742.78	938.44	GRND SUB	938.44	940.54	2.11					
1133	863,342.02	2,031,742.54	938.60	GRND SUB	938.60	940.65	2.05					
1134	863,342.00	2,031,699.52	939.41	GRND SUB	939.41	941.49	2.07					
1135	863,341.81	2,031,599.43	941.45	GRND SUB	941.45	943.54	2.09					
1136	863,341.88	2,031,499.28	943.30	GRND SUB	943.30	945.36	2.05					
1137	863,342.12	2,031,399.50	945.21	GRND SUB	945.21	947.24	2.04					
1138	863,342.08	2,031,299.57	946.96	GRND SUB	946.96	949.04	2.09					
1139	863,342.17	2,031,199.42	945.31	GRND SUB	945.31	947.40	2.09					
1140	863,342.09	2,031,099.43	943.35	GRND SUB	943.35	945.38	2.03					
1141	863,341.92	2,030,999.37	941.29	GRND SUB	941.29	943.35	2.06					
1142	863,342.14	2,030,899.50	939.41	GRND SUB	939.41	941.45	2.04					
1145	863,242.04	2,030,899.43	939.22	GRND SUB	939.22	941.48	2.26					
1146	863,241.96	2,030,999.62	941.45	GRND SUB	941.45	943.59	2.13					
1147	863,242.07	2,031,099.53	943.39	GRND SUB	943.39	945.46	2.07					
1148	863,242.06	2,031,199.40	945.35	GRND SUB	945.35	947.52	2.18					
1149	863,242.07	2,031,299.48	947.33	GRND SUB	947.33	949.40	2.07					
1150	863,242.09	2,031,399.60	945.29	GRND SUB	945.29	947.55	2.26					
1151	863,242.16	2,031,499.43	943.30	GRND SUB	943.30	945.39	2.09					
1152	863,242.08	2,031,599.38	941.27	GRND SUB	941.27	943.36	2.08					
1153	863,242.04	2,031,699.48	939.33	GRND SUB	939.33	941.44	2.11					
1154	863,241.75	2,031,742.52	938.37	GRND SUB	938.37							
1155	863,141.97	2,031,742.70	938.03	GRND SUB	938.03							

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
1167	863,042.06	2,030,899.54	939.29	GRND SUB	939.29	941.35	2.06					
1168	863,041.93	2,030,999.46	941.20	GRND SUB	941.20	943.41	2.21					
1169	863,041.99	2,031,099.54	943.09	GRND SUB	943.09	945.21	2.12					
1170	863,042.09	2,031,199.51	945.30	GRND SUB	945.30	947.43	2.13					
1171	863,041.98	2,031,299.47	947.19	GRND SUB	947.19	949.22	2.03					
1172	863,041.94	2,031,399.31	945.33	GRND SUB	945.33	947.45	2.12					
1173	863,042.12	2,031,499.61	943.28	GRND SUB	943.28	945.37	2.09					
1174	863,042.08	2,031,599.49	941.20	GRND SUB	941.20	943.25	2.05					
1175	863,042.03	2,031,699.40	939.29	GRND SUB	939.29	941.30	2.01					
1176	863,042.07	2,031,742.65	938.55	GRND SUB	938.55							
1177	862,941.70	2,031,742.49	938.37	GRND SUB	938.37							
1178	862,942.12	2,031,699.58	939.29	GRND SUB	939.29	941.44	2.14					
1179	862,942.19	2,031,599.68	941.24	GRND SUB	941.24	943.43	2.18					
1180	862,942.02	2,031,499.50	943.18	GRND SUB	943.18	945.19	2.02					
1181	862,941.97	2,031,399.38	945.15	GRND SUB	945.15	947.27	2.13					
1182	862,942.07	2,031,299.45	947.08	GRND SUB	947.08	949.17	2.09					
1183	862,941.98	2,031,199.51	945.09	GRND SUB	945.09	947.19	2.11					
1184	862,941.97	2,031,099.53	943.10	GRND SUB	943.10	945.20	2.10					
1185	862,941.99	2,030,999.51	941.10	GRND SUB	941.10	943.15	2.05					
1186	862,942.10	2,030,899.19	939.30	GRND SUB	939.30	941.34	2.05					
1189	862,842.06	2,030,899.55	939.38	GRND SUB	939.38	941.57	2.18					
1190	862,842.14	2,030,999.51	941.33	GRND SUB	941.33	943.37	2.05					
1191	862,842.03	2,031,099.62	943.28	GRND SUB	943.28	945.46	2.17					
1192	862,842.02	2,031,199.49	945.32	GRND SUB	945.32	947.55	2.24					
1193	862,841.97	2,031,299.49	947.13	GRND SUB	947.13	949.20	2.08					
1194	862,842.05	2,031,399.42	945.24	GRND SUB	945.24	947.38	2.14					
1195	862,841.94	2,031,499.27	943.16	GRND SUB	943.16	945.30	2.13					
1196	862,842.03	2,031,599.48	941.29	GRND SUB	941.29	943.41	2.12					
1197	862,842.04	2,031,699.47	939.37	GRND SUB	939.37	941.48	2.12					
1198	862,841.93	2,031,742.49	938.42	GRND SUB	938.42							
1199	862,741.92	2,031,742.70	938.25	GRND SUB	938.25							
1200	862,742.07	2,031,699.42	939.29	GRND SUB	939.29	941.40	2.11					
1201	862,742.16	2,031,599.46	941.32	GRND SUB	941.32	943.39	2.07					
1202	862,741.98	2,031,499.51	943.32	GRND SUB	943.32	945.36	2.04					
1203	862,741.95	2,031,399.39	945.27	GRND SUB	945.27	947.29	2.02					
1204	862,742.12	2,031,299.55	946.98	GRND SUB	946.98	949.04	2.06					
1205	862,742.00	2,031,199.43	945.34	GRND SUB	945.34	947.38	2.04					
1206	862,741.99	2,031,099.49	943.24	GRND SUB	943.24	945.31	2.07					
1207	862,742.09	2,030,999.40	941.37	GRND SUB	941.37	943.57	2.20					
1208	862,741.86	2,030,899.58	939.28	GRND SUB	939.28	941.35	2.07					
1211	862,642.59	2,030,899.52	939.34	GRND SUB	939.34	941.56	2.22					

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
1212	862,641.80	2,030,999.43	941.18	GRND SUB	941.18	943.25	2.07					
1213	862,640.75	2,031,099.40	943.23	GRND SUB	943.23	945.30	2.06					
1214	862,639.98	2,031,199.45	945.24	GRND SUB	945.24	947.42	2.18					
1215	862,639.11	2,031,299.35	946.94	GRND SUB	946.94	948.98	2.04					
1216	862,650.50	2,031,399.61	945.73	GRND SUB	945.73	947.78	2.05					
1217	862,661.88	2,031,499.47	943.38	GRND SUB	943.38	945.55	2.17					
1218	862,672.83	2,031,599.43	941.33	GRND SUB	941.33	943.44	2.11					
1219	862,683.97	2,031,699.53	939.34	GRND SUB	939.34	941.61	2.27					
1220	862,688.93	2,031,742.68	938.37	GRND SUB	938.37							
1323	863,742.05	2,031,599.42	983.31	GRND	983.31	985.57	2.26	989.75	6.44			
1324	863,742.11	2,031,499.59	983.51	GRND	983.51	985.83	2.31	989.95	6.43			
1325	863,741.87	2,031,399.43	983.45	GRND	983.45	985.89	2.44	989.88	6.43			
1326	863,742.05	2,031,299.60	983.32	GRND	983.32	985.67	2.34	989.72	6.40			
1327	863,741.98	2,031,199.47	983.37	GRND	983.37	985.60	2.23	989.78	6.41			
1328	863,742.07	2,031,099.47	983.42	GRND	983.42	985.78	2.36	989.82	6.40			
1329	863,742.05	2,030,999.53	983.40	GRND	983.40	985.67	2.28	989.80	6.40			
1330	863,742.04	2,030,899.54	983.44	GRND	983.44	985.74	2.30	989.86	6.42			
1335	863,642.16	2,030,698.99	981.98	GRND	981.98	984.20	2.22	988.46	6.47			
1337	863,642.09	2,030,899.49	950.05	GRND	950.05	952.46	2.42	956.49	6.44			
1338	863,642.10	2,030,999.40	950.08	GRND	950.08	952.69	2.61	956.39	6.31			
1339	863,641.85	2,031,099.40	950.06	GRND	950.06	952.35	2.29	956.47	6.41			
1340	863,642.10	2,031,199.46	950.11	GRND	950.11	952.36	2.25	956.39	6.28			
1341	863,641.95	2,031,299.51	949.92	GRND	949.92	952.02	2.10	956.27	6.35			
1342	863,641.95	2,031,399.55	949.91	GRND	949.91	952.12	2.21	956.29	6.38			
1343	863,642.05	2,031,499.40	949.98	GRND	949.98	952.20	2.22	956.33	6.35			
1346	863,641.85	2,031,799.56	950.07	GRND SUB	950.07	952.26	2.19	956.72	6.64			
1354	863,542.06	2,031,899.48	966.27	GRND SUB	966.27	968.30	2.02					
1355	863,542.07	2,031,799.40	948.47	GRND SUB	948.47	950.56	2.09	955.06	6.59			
1356	863,442.19	2,031,799.46	948.65	GRND SUB	948.65	950.73	2.08	955.10	6.45			
1357	863,442.01	2,031,899.47	966.06	GRND SUB	966.06	968.23	2.16					
1364	863,341.89	2,031,899.43	966.10	GRND SUB	966.10	968.22	2.13					
1365	863,342.34	2,031,799.62	948.75	GRND SUB	948.75	950.90	2.15	955.16	6.40			
1366	863,242.28	2,031,799.60	948.72	GRND SUB	948.72	950.86	2.13	955.09	6.37			
1367	863,242.12	2,031,899.35	966.06	GRND SUB	966.06	968.12	2.05					
1374	863,142.09	2,031,899.50	965.99	BA BENCH	965.99	968.06	2.07	986.30	20.31			
1375	863,141.99	2,031,799.55	948.59	GRND SUB	948.59	950.72	2.12	957.63	9.04			
1376	863,041.89	2,031,799.44	948.50	GRND SUB	948.50	950.71	2.22	954.97	6.47			
1377	863,042.17	2,031,899.40	966.10	BA BENCH	966.10	968.22	2.12	982.24	16.14			
1384	862,942.04	2,031,899.44	965.95	BA BENCH	965.95	968.16	2.21	981.64	15.69			
1385	862,941.89	2,031,799.23	948.47	GRND SUB	948.47	950.67	2.19	954.91	6.44			
1386	862,842.07	2,031,799.52	948.61	GRND SUB	948.61	950.80	2.19	955.09	6.48			

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
1387	862,842.00	2,031,899.46	965.98	BA BENCH	965.98	968.12	2.14	981.92	15.94			
1394	862,742.08	2,031,899.48	966.09	GRND SUB	966.09	968.16	2.06					
1395	862,742.18	2,031,799.68	948.57	GRND SUB	948.57	950.72	2.15	955.00	6.44			
1397	862,642.09	2,031,899.55	966.13	GRND SUB	966.13	968.14	2.01	982.67	16.54			
1398	862,642.12	2,031,849.06	965.04	SLPT SUB	965.04	967.14	2.10					
1404	862,542.00	2,031,899.55	966.64	BA BENCH	966.64	968.68	2.04	982.90	16.26			
1405	862,542.20	2,031,799.63	966.23	BA BENCH	966.23	968.27	2.04	981.82	15.59			
1406	862,542.33	2,031,699.67	966.14	BA BENCH	966.14	968.26	2.13	981.69	15.56			
1420	862,542.12	2,030,699.53	981.77	GRND SUB	981.77	984.28	2.50	988.16	6.38	988.16	0.55	
1421	862,541.99	2,030,599.61	1,012.14	CLRD	1,012.14							
1422	862,641.92	2,030,599.43	1,011.91	CLRD	1,011.91							
1423	862,642.18	2,030,699.45	981.81	GRND SUB	981.81	984.21	2.39	988.25	6.43	988.25	0.57	
1424	862,642.14	2,030,799.36	948.45	GRND SUB	948.45	950.83	2.38	954.81	6.37			
1425	862,742.12	2,030,799.51	948.33	GRND SUB	948.33	950.54	2.21	954.67	6.34			
1426	862,742.07	2,030,699.60	981.78	GRND SUB	981.78	984.20	2.42	988.23	6.45	988.23	0.59	
1427	862,741.99	2,030,599.67	1,011.81	CLRD	1,011.81							
1428	862,842.06	2,030,599.37	1,011.89	CLRD	1,011.89							
1429	862,842.35	2,030,699.33	981.92	GRND SUB	981.92	984.33	2.41	988.33	6.41	988.33	0.55	
1430	862,841.96	2,030,799.62	948.24	GRND SUB	948.24	950.49	2.25	954.59	6.35			
1431	862,941.98	2,030,799.36	948.35	GRND SUB	948.35	950.58	2.23	954.78	6.43			
1432	862,942.22	2,030,699.47	981.87	GRND SUB	981.87	984.31	2.44	988.23	6.36	988.23	0.53	
1433	862,942.05	2,030,599.51	1,011.79	CLRD	1,011.79							
1434	863,042.17	2,030,599.65	1,012.08	CLRD	1,012.08							
1435	863,042.01	2,030,699.21	981.96	GRND SUB	981.96	984.35	2.39	988.35	6.39	988.35	0.55	
1436	863,042.18	2,030,799.51	948.37	GRND SUB	948.37	950.80	2.43	954.90	6.53			
1437	863,142.12	2,030,799.26	948.54	GRND SUB	948.54	950.94	2.39	957.58	9.04			
1438	863,142.02	2,030,699.14	981.89	GRND SUB	981.89	984.24	2.35	991.01	9.13	991.01	0.55	
1439	863,141.91	2,030,599.49	1,012.03	CLRD	1,012.03							
1440	863,242.01	2,030,599.61	1,011.84	CLRD	1,011.84							
1441	863,241.99	2,030,699.42	981.67	GRND SUB	981.67	984.12	2.45	988.14	6.47	988.14	0.61	
1442	863,241.98	2,030,799.35	948.41	GRND SUB	948.41	950.66	2.25	954.79	6.37			
1443	863,341.98	2,030,799.45	948.39	GRND SUB	948.39	950.82	2.42	954.72	6.32			
1444	863,342.03	2,030,699.33	981.77	GRND SUB	981.77	984.13	2.36	988.15	6.38	988.15	0.54	
1445	863,341.93	2,030,599.53	1,011.91	CLRD	1,011.91							
1446	863,441.99	2,030,599.62	1,011.92	CLRD	1,011.92							
1447	863,442.25	2,030,699.25	981.96	GRND SUB	981.96	984.27	2.31	988.30	6.34	988.30	0.47	
1448	863,441.97	2,030,799.25	948.44	GRND SUB	948.44	950.81	2.37	954.80	6.36			
1449	863,542.12	2,030,799.35	948.58	GRND SUB	948.58	950.92	2.35	955.03	6.45			
1450	863,541.89	2,030,699.25	981.73	GRND SUB	981.73	983.82	2.09	988.08	6.34	988.08	0.53	
1451	863,542.08	2,030,599.28	1,011.94	CLRD	1,011.94							
1455	862,392.31	2,031,599.42	983.74	GRND SUB	983.74							

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
1456	862,392.21	2,031,499.62	983.76	GRND SUB	983.76							
1457	862,392.07	2,031,399.64	983.74	GRND SUB	983.74							
1458	862,392.15	2,031,299.28	983.91	GRND SUB	983.91							
1459	862,391.96	2,031,199.51	983.81	GRND SUB	983.81							
1500	863,133.32	2,031,748.22	938.40	BL SLPT SUB	938.40							
1501	863,136.93	2,031,748.08	938.01	BL SLPB SUB	938.01							
1502	863,146.74	2,031,748.50	938.11	BL SLPB1 SUB	938.11							
1503	863,150.31	2,031,749.11	938.46	BL SLPT1 SUB	938.46							
1504	863,154.46	2,031,699.62	939.26	SLPT1 SUB	939.26	941.44	2.18					
1505	863,146.14	2,031,699.64	938.12	SLPB1 SUB	938.12							
1506	863,135.40	2,031,699.54	938.23	SLPB SUB	938.23							
1507	863,129.30	2,031,699.71	939.49	SLPT SUB	939.49	941.52	2.03					
1508	863,118.76	2,031,599.49	941.27	SLPT SUB	941.27	943.62	2.35					
1509	863,136.69	2,031,599.58	938.03	SLPB SUB	938.03							
1510	863,146.94	2,031,599.58	938.15	SLPB1 SUB	938.15							
1511	863,163.18	2,031,599.49	941.32	SLPT1 SUB	941.32	943.53	2.21					
1512	863,175.00	2,031,499.67	943.31	SLPT1 SUB	943.31	945.45	2.14					
1513	863,147.91	2,031,499.58	938.28	SLPB1 SUB	938.28							
1514	863,137.07	2,031,499.38	938.12	SLPB SUB	938.12							
1515	863,108.89	2,031,499.53	943.23	SLPT SUB	943.23	945.39	2.16					
1516	863,098.96	2,031,399.34	945.21	SLPT SUB	945.21	947.38	2.17					
1517	863,136.07	2,031,399.38	938.00	SLPB SUB	938.00							
1518	863,148.00	2,031,399.50	938.09	SLPB1 SUB	938.09							
1519	863,185.68	2,031,399.50	945.32	SLPT1 SUB	945.32	947.50	2.17					
1520	863,194.59	2,031,299.88	947.30	SLPT1 SUB	947.30	949.34	2.04					
1521	863,147.79	2,031,299.37	938.04	SLPB1 SUB	938.04							
1522	863,135.74	2,031,299.64	938.05	SLPB SUB	938.05							
1523	863,089.73	2,031,299.51	947.47	SLPT SUB	947.47	949.50	2.03					
1524	863,098.45	2,031,199.38	945.38	SLPT SUB	945.38	947.52	2.15					
1525	863,136.34	2,031,199.42	938.16	SLPB SUB	938.16							
1526	863,147.84	2,031,199.78	938.20	SLPB1 SUB	938.20							
1527	863,184.96	2,031,199.41	945.31	SLPT1 SUB	945.31	947.37	2.07					
1528	863,173.85	2,031,099.63	943.15	SLPT1 SUB	943.15	945.21	2.06					
1529	863,147.03	2,031,099.48	938.18	SLPB1 SUB	938.18							
1530	863,135.17	2,031,099.56	938.08	SLPB SUB	938.08							
1531	863,109.98	2,031,099.54	943.05	SLPT SUB	943.05	945.19	2.14					
1532	863,118.34	2,030,999.38	941.39	SLPT SUB	941.39	943.70	2.32					
1533	863,135.73	2,030,999.46	938.13	SLPB SUB	938.13							
1534	863,148.05	2,030,999.55	938.09	SLPB1 SUB	938.09							
1535	863,165.09	2,030,999.52	941.27	SLPT1 SUB	941.27	943.37	2.10					
1536	863,153.53	2,030,899.35	939.46	SLPT1 SUB	939.46	941.55	2.09					

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
1537	863,146.75	2,030,899.41	938.14	SLPB1 SUB	938.14							
1538	863,136.26	2,030,899.68	938.33	SLPB SUB	938.33							
1539	863,128.50	2,030,899.54	939.59	SLPT SUB	939.59	941.70	2.10					
1540	863,132.08	2,030,850.29	938.51	EL SLPT SUB	938.51							
1541	863,137.69	2,030,850.48	938.13	EL SLPB SUB	938.13							
1542	863,147.41	2,030,851.13	937.96	EL SLPB1 SUB	937.96							
1543	863,150.09	2,030,850.87	938.39	EL SLPT1 SUB	938.39							
1548	863,609.42	2,030,899.48	939.48	BL SLPB SUB	939.48							
1549	863,615.77	2,030,999.48	941.58	SLPB SUB	941.58	943.89	2.30	947.97	6.39			
1550	863,621.25	2,031,099.51	943.53	SLPB SUB	943.53	945.86	2.33	949.94	6.41			
1551	863,627.84	2,031,199.47	945.56	SLPB SUB	945.56	948.03	2.48	951.97	6.41			
1552	863,632.94	2,031,299.52	947.43	SLPB SUB	947.43	949.84	2.41	953.76	6.33			
1553	863,626.01	2,031,399.44	945.33	SLPB SUB	945.33	948.06	2.73	951.79	6.45			
1554	863,620.20	2,031,499.44	943.34	SLPB SUB	943.34	945.72	2.38	949.76	6.42			
1555	863,614.63	2,031,599.45	941.35	SLPB SUB	941.35	943.99	2.64	947.72	6.38			
1556	863,609.79	2,031,686.55	939.52	EL SLPB SUB	939.52			945.90	6.37			
1559	863,541.77	2,031,768.62	938.06	BL SLPB SUB	938.06							
1561	863,342.11	2,031,767.51	938.18	SLPB SUB	938.18							
1563	863,141.89	2,031,768.01	938.12	SLPB SUB	938.12							
1564	863,042.01	2,031,767.47	938.05	SLPB SUB	938.05							
1565	862,941.94	2,031,768.04	938.08	SLPB SUB	938.08							
1566	862,841.98	2,031,767.85	938.06	SLPB SUB	938.06							
1567	862,742.03	2,031,768.03	937.96	SLPB SUB	937.96							
1568	862,668.38	2,031,767.72	938.72	SLPB SUB	938.72							
1569	862,671.50	2,031,699.51	939.23	SLPB SUB	939.23							
1570	862,659.86	2,031,599.42	941.46	SLPB SUB	941.46	943.47	2.01	947.86	6.40			
1571	862,648.82	2,031,499.43	943.43	SLPB SUB	943.43	945.47	2.05	949.89	6.47			
1572	862,637.26	2,031,399.51	945.50	SLPB SUB	945.50	947.56	2.05	952.03	6.53			
1573	862,626.68	2,031,299.27	947.34	SLPB SUB	947.34	949.47	2.13	953.83	6.49			
1574	862,627.08	2,031,199.49	945.48	SLPB SUB	945.48	947.52	2.04	951.98	6.50			
1575	862,628.15	2,031,099.46	943.44	SLPB SUB	943.44	945.45	2.01	949.77	6.33			
1576	862,629.46	2,030,999.52	941.31	SLPB SUB	941.31	943.38	2.08					
1577	862,629.99	2,030,899.51	939.34	SLPB SUB	939.34	941.40	2.06					
1578	862,629.34	2,030,842.46	938.26	SLPB SUB	938.26							
1579	862,647.66	2,030,830.75	938.05	SLPB SUB	938.05							
1580	862,741.98	2,030,830.51	938.10	SLPB SUB	938.10							
1581	862,842.06	2,030,831.22	938.21	SLPB SUB	938.21							
1582	862,942.04	2,030,831.73	937.98	SLPB SUB	937.98							
1583	863,042.01	2,030,831.68	938.19	SLPB SUB	938.19							
1584	863,142.05	2,030,831.70	938.27	SLPB SUB	938.27							
1585	863,242.25	2,030,831.31	938.10	SLPB SUB	938.10							

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
1586	863,341.89	2,030,831.89	938.25	SLPB SUB	938.25							
1587	863,442.02	2,030,831.21	938.64	SLPB SUB	938.64							
1588	862,362.03	2,031,648.85	983.88	BL SLPT SUB	983.88							
1591	862,359.06	2,031,598.95	984.07	SLPT SUB	984.07							
1594	862,443.79	2,031,543.95	978.86	BL SLPT1 SUB	978.86	981.20	2.34					
1595	862,441.09	2,031,499.51	978.76	SLPT1 SUB	978.76	981.31	2.55					
1596	862,420.82	2,031,499.33	978.86	BL SLPB2 SUB	978.86							
1597	862,415.56	2,031,399.30	978.85	SLPB2 SUB	978.85							
1598	862,436.33	2,031,399.40	978.71	SLPT1 SUB	978.71	981.00	2.29					
1599	862,430.82	2,031,299.44	978.87	SLPT1 SUB	978.87	981.25	2.37					
1600	862,410.69	2,031,299.33	978.88	SLPB2 SUB	978.88							
1601	862,405.28	2,031,199.32	979.05	SLPB2 SUB	979.05							
1602	862,425.61	2,031,199.32	978.87	SLPT1 SUB	978.87	981.35	2.48					
1603	862,420.31	2,031,099.51	978.96	SLPT1 SUB	978.96	981.24	2.28					
1604	862,400.17	2,031,100.48	978.82	SLPB2 SUB	978.82							
1605	862,394.66	2,030,999.44	979.07	SLPB2 SUB	979.07							
1606	862,414.77	2,030,999.38	979.03	SLPT1 SUB	979.03	981.47	2.44					
1607	862,412.01	2,030,941.30	978.96	SLPT1 SUB	978.96	981.72	2.76					
1608	862,392.42	2,030,940.12	979.11	SLPB2 SUB	979.11							
1609	862,394.58	2,030,899.56	982.08	SLPB2 SUB	982.08							
1610	862,415.41	2,030,899.63	982.12	SLPT1 SUB	982.12	984.53	2.41					
1611	862,423.35	2,030,800.05	989.94	SLPT1 SUB	989.94	992.53	2.58					
1612	862,403.27	2,030,799.27	990.07	SLPB2 SUB	990.07							
1613	862,410.98	2,030,699.14	998.25	SLPB2 SUB	998.25							
1614	862,431.45	2,030,699.91	998.07	SLPT1 SUB	998.07	1,000.43	2.36					
1615	862,437.01	2,030,634.57	1,003.73	SLPT1 SUB	1,003.73	1,006.53	2.80					
1616	862,438.17	2,030,620.92	1,008.01	EL SLPT1 SUB	1,008.01	1,010.30	2.29					
1617	862,417.01	2,030,634.62	1,003.49	SLPB2 SUB	1,003.49							
1618	862,417.86	2,030,618.75	1,008.62	EL SLPB2 SUB	1,008.62							
1619	862,439.46	2,030,634.90	1,003.65	BL SLPB2 SUB	1,003.65	1,005.93	2.28					
1620	862,479.64	2,030,695.06	983.55	SLPB2 SUB	983.55	986.28	2.73	990.02	6.47	990.02	0.59	
1621	862,515.32	2,030,746.49	966.38	BA BENCH	966.38	969.18	2.80	973.45	7.07			
1622	862,465.15	2,030,764.71	980.20	GRND SUB	980.20	982.47	2.27	986.52	6.32			
1623	862,461.57	2,030,799.61	977.84	GRND SUB	977.84	979.98	2.14	984.19	6.35			
1624	862,441.95	2,030,899.91	973.51	BA BENCH	973.51	975.81	2.29	979.85	6.34			
1625	862,431.90	2,030,940.46	972.46	BA BENCH	972.46	974.96	2.49	983.82	11.36			
1626	862,433.64	2,031,000.36	972.83	GRND SUB	972.83	975.18	2.35					
1627	862,438.54	2,031,100.29	972.93	BA BENCH	972.93	975.23	2.30	984.01	11.09			
1628	862,443.71	2,031,200.87	972.89	BA BENCH	972.89	975.27	2.38	983.49	10.60			
1629	862,449.15	2,031,300.56	972.80	BA BENCH	972.80	975.29	2.49	983.35	10.55			
1630	862,454.30	2,031,400.26	972.81	BA BENCH	972.81	975.06	2.25	983.47	10.66			

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
1631	862,459.66	2,031,500.41	972.87	BA BENCH	972.87	975.14	2.26	983.41	10.53			
1632	862,460.01	2,031,600.29	974.49	BA BENCH	974.49	976.86	2.36	983.41	8.92			
1633	862,460.38	2,031,659.16	975.33	BA BENCH	975.33	977.63	2.30					
1634	862,417.16	2,031,543.17	983.95	SLPT2 SUB	983.95							
1635	862,414.83	2,031,500.13	983.87	BL SLPT2 SUB	983.87							
1636	862,353.99	2,031,499.42	984.03	SLPT SUB	984.03							
1637	862,348.66	2,031,399.90	983.90	SLPT SUB	983.90							
1638	862,408.89	2,031,400.20	983.83	SLPT2 SUB	983.83							
1639	862,403.31	2,031,299.38	983.80	SLPT2 SUB	983.80							
1640	862,343.18	2,031,299.53	984.29	SLPT SUB	984.29							
1641	862,337.39	2,031,199.59	983.66	SLPT SUB	983.66							
1642	862,398.20	2,031,199.33	983.82	SLPT2 SUB	983.82							
1643	862,393.56	2,031,100.86	983.81	SLPT2 SUB	983.81							
1644	862,331.75	2,031,099.33	983.75	SLPT SUB	983.75							
1645	862,327.61	2,030,999.20	984.02	SLPT SUB	984.02							
1646	862,387.56	2,030,999.55	983.84	SLPT2 SUB	983.84							
1647	862,385.33	2,030,938.48	983.81	SLPT2 SUB	983.81							
1648	862,323.76	2,030,938.27	983.85	SLPT SUB	983.85							
1649	862,330.45	2,030,899.44	986.72	SLPT SUB	986.72							
1650	862,387.82	2,030,899.57	986.97	SLPT2 SUB	986.97							
1651	862,396.28	2,030,799.42	994.87	SLPT2 SUB	994.87							
1652	862,349.75	2,030,799.42	994.94	SLPT SUB	994.94							
1653	862,368.91	2,030,699.35	1,002.92	SLPT SUB	1,002.92							
1654	862,404.88	2,030,700.21	1,003.01	SLPT2 SUB	1,003.01							
1655	862,413.98	2,030,616.27	1,009.72	SLPT2 SUB	1,009.72							
1656	862,438.41	2,030,617.02	1,009.94	SLPT2 SUB	1,009.94							
1657	862,463.11	2,030,615.19	1,009.98	SLPT2 SUB	1,009.98							
1658	862,518.60	2,030,612.65	1,012.02	EL SLPT2 SUB	1,012.02							
1659	862,517.89	2,030,610.56	1,012.07	BL SLPB2	1,012.07							
1660	862,480.96	2,030,596.61	1,011.73	SLPB2	1,011.73							
1661	862,441.74	2,030,567.11	1,011.57	SLPB2	1,011.57							
1662	862,416.79	2,030,538.43	1,011.86	SLPB2	1,011.86							
1663	862,400.66	2,030,508.90	1,011.70	SLPB2	1,011.70							
1664	862,390.32	2,030,473.99	1,011.60	SLPB2	1,011.60							
1665	862,392.56	2,030,524.71	1,010.34	GRND	1,010.34							
1666	862,413.60	2,030,564.39	1,009.80	GRND	1,009.80							
1667	862,451.41	2,030,593.43	1,010.10	GRND	1,010.10							
1668	862,467.83	2,030,603.43	1,010.45	GRND	1,010.45							
1669	862,414.14	2,030,599.14	1,009.86	GRND	1,009.86							
1670	862,386.01	2,030,612.17	1,010.07	SLPT SUB	1,010.07							
1671	862,383.31	2,030,558.17	1,010.01	SLPT SUB	1,010.01							

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
1672	862,381.11	2,030,520.69	1,010.08	SLPT SUB	1,010.08							
1673	862,381.37	2,030,477.01	1,011.52	EL SLPT SUB	1,011.52							
1674	862,545.06	2,030,750.69	965.21	BL SLPB#BL SLPT	965.21	967.75	2.54	973.43	8.21			
1675	862,516.62	2,030,748.60	965.68	SLPB SUB	965.68	968.28	2.60	972.14	6.46			
1676	862,498.37	2,030,799.70	965.95	BA BENCH	965.95	968.55	2.60	982.19	16.24			
1677	862,547.20	2,030,799.67	964.76	SLPT SUB	964.76	966.76	2.01	971.44	6.69			
1678	862,552.33	2,030,899.57	965.16	SLPT SUB	965.16	967.18	2.02	971.72	6.56			
1679	862,463.43	2,030,900.32	966.59	BA BENCH	966.59	968.69	2.10	982.66	16.07			
1680	862,448.70	2,030,942.17	967.03	BA BENCH	967.03	969.30	2.27	983.57	16.54			
1681	862,451.47	2,030,999.79	967.00	BA BENCH	967.00	969.07	2.07	984.06	17.05			
1682	862,557.57	2,030,999.40	964.96	SLPT SUB	964.96	966.98	2.02	971.49	6.53			
1683	862,562.85	2,031,099.80	964.89	SLPT SUB	964.89	966.98	2.09	971.48	6.59			
1684	862,456.84	2,031,099.35	967.17	SLPB SUB	967.17	969.45	2.27	983.69	16.52			
1685	862,461.91	2,031,199.29	967.13	BA BENCH	967.13	969.20	2.08	982.44	15.31			
1686	862,567.77	2,031,199.60	964.91	SLPT SUB	964.91	967.10	2.19	972.16	7.24			
1687	862,573.65	2,031,299.53	964.94	SLPT SUB	964.94	966.97	2.03					
1688	862,467.51	2,031,299.32	966.78	BA BENCH	966.78	969.02	2.23	982.67	15.89			
1689	862,472.57	2,031,399.58	966.90	BA BENCH	966.90	969.00	2.10	982.75	15.85			
1690	862,578.77	2,031,399.62	964.88	SLPT SUB	964.88	966.93	2.05					
1691	862,583.15	2,031,498.81	964.96	SLPT SUB	964.96	967.10	2.14					
1692	862,477.51	2,031,499.73	967.01	BA BENCH	967.01	969.41	2.41	982.69	15.69			
1693	862,482.67	2,031,599.52	966.97	BA BENCH	966.97	969.32	2.35	982.71	15.74			
1694	862,588.91	2,031,599.37	964.82	SLPT SUB	964.82	967.07	2.25					
1695	862,591.00	2,031,659.73	964.77	SLPT SUB	964.77							
1696	862,538.61	2,031,658.53	965.76	SLPT SUB	965.76							
1697	862,485.60	2,031,662.87	967.03	SLPB SUB	967.03							
1698	862,536.10	2,031,599.60	965.77	BA BENCH	965.77	967.92	2.16	981.57	15.80			
1699	862,530.73	2,031,499.60	965.94	GRND SUB	965.94	968.05	2.11					
1700	862,525.45	2,031,399.70	965.91	BA BENCH	965.91	968.10	2.20	981.39	15.48			
1701	862,520.38	2,031,299.57	965.87	BA BENCH	965.87	968.08	2.20	981.67	15.79			
1702	862,514.92	2,031,199.79	966.02	BA BENCH	966.02	968.21	2.19	982.24	16.22			
1703	862,509.75	2,031,099.55	965.97	BA BENCH	965.97	968.11	2.14	982.53	16.56			
1704	862,504.70	2,030,999.67	966.08	BA BENCH	966.08	968.18	2.10	982.41	16.32			
1705	862,499.41	2,030,899.62	965.97	GRND SUB	965.97	968.16	2.19	982.33	16.36			
1706	862,548.37	2,030,754.01	964.05	BL SLPB	964.05	966.87	2.82	972.10	8.05			
1707	862,592.83	2,030,793.59	950.71	SLPB	950.71	953.03	2.32	957.07	6.36			
1708	862,630.61	2,030,830.18	939.41	EL SLPB	939.41							
1709	862,587.48	2,030,897.40	953.17	GRND SUB	953.17	955.38	2.20	959.52	6.35			
1710	862,593.73	2,030,998.25	952.91	GRND SUB	952.91	955.06	2.15	959.34	6.44			
1711	862,597.64	2,031,101.02	953.35	GRND SUB	953.35	955.52	2.17	959.77	6.42			
1712	862,599.10	2,031,198.60	954.61	GRND SUB	954.61	956.77	2.17	961.07	6.46			

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
1713	862,601.56	2,031,299.48	955.48	GRND SUB	955.48	957.69	2.21	962.05	6.57			
1714	862,608.35	2,031,400.06	954.98	GRND SUB	954.98	957.09	2.11	961.52	6.55			
1715	862,618.00	2,031,500.04	953.56	GRND SUB	953.56	955.74	2.18	960.09	6.53			
1716	862,623.97	2,031,599.92	953.19	GRND SUB	953.19	955.45	2.26	959.65	6.46			
1717	862,631.50	2,031,692.65	952.43	GRND SUB	952.43	954.55	2.12	958.91	6.48			
1718	863,542.05	2,030,591.64	1,011.71	BL EORG	1,011.71							
1719	863,542.90	2,030,610.37	1,011.85	BL EORG1	1,011.85							
1720	863,442.17	2,030,609.69	1,011.80	EORG1	1,011.80							
1721	863,442.09	2,030,591.41	1,011.75	EORG	1,011.75							
1722	863,342.07	2,030,590.06	1,011.71	EORG	1,011.71							
1723	863,341.89	2,030,609.90	1,011.80	EORG1	1,011.80							
1724	863,241.85	2,030,610.82	1,011.71	EORG1	1,011.71							
1725	863,242.03	2,030,590.35	1,011.57	EORG	1,011.57							
1726	863,142.09	2,030,610.10	1,011.88	EORG1	1,011.88							
1727	863,141.98	2,030,590.03	1,011.77	EORG	1,011.77							
1728	863,041.88	2,030,589.52	1,011.69	EORG	1,011.69							
1729	863,042.08	2,030,609.52	1,011.99	EORG1	1,011.99							
1730	862,941.88	2,030,609.23	1,011.71	EORG1	1,011.71							
1730	863,242.48	2,031,955.88	967.21	BL SLPB	967.21							
1730	863,242.48	2,031,955.88	967.21	SLPB	967.21	969.22	2.01					
1731	862,942.23	2,030,588.70	1,011.36	EORG	1,011.36							
1731	863,341.99	2,031,956.29	967.47	SLPB SUB	967.47	969.34	1.87					
1731	863,341.99	2,031,956.29	967.47	SLPB SUB	967.47	969.51	2.04					
1732	862,842.28	2,030,588.31	1,011.57	EORG	1,011.57							
1732	863,341.78	2,031,849.56	965.25	SLPT SUB	965.25	967.10	1.85					
1732	863,341.78	2,031,849.56	965.25	SLPT SUB	965.25	967.33	2.08					
1733	862,841.82	2,030,610.09	1,011.90	EORG1	1,011.90							
1733	863,441.98	2,031,848.67	964.98	SLPT SUB	964.98							
1733	863,441.98	2,031,848.67	964.98	SLPT SUB	964.98	967.04	2.06					
1734	862,741.25	2,030,608.02	1,011.88	EORG1	1,011.88							
1734	863,441.90	2,031,954.12	967.04	SLPB SUB	967.04							
1734	863,441.90	2,031,954.12	967.04	SLPB SUB	967.04	969.06	2.02					
1735	862,741.52	2,030,587.86	1,011.39	EORG	1,011.39							
1735	863,478.86	2,031,952.10	967.14	SLPB SUB	967.14							
1735	863,478.86	2,031,952.10	967.14	SLPB SUB	967.14	969.20	2.06					
1736	862,642.05	2,030,586.03	1,011.42	EORG	1,011.42							
1736	863,542.24	2,031,927.78	966.75	SLPB SUB	966.75	968.79	2.04					
1736	863,542.24	2,031,927.78	966.95	SLPB SUB	966.95	968.95	2.01					
1737	862,641.96	2,030,609.72	1,011.83	EORG1	1,011.83							
1737	863,541.77	2,031,847.80	965.10	SLPT SUB	965.10							
1737	863,541.77	2,031,847.80	965.10	SLPT SUB	965.10	967.11	2.01					

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
1738	862,541.87	2,030,606.84	1,012.23	EORG1	1,012.23							
1738	863,565.24	2,031,846.76	964.49	SLPT SUB	964.49							
1738	863,565.24	2,031,846.76	964.49	SLPT SUB	964.49	966.56	2.07					
1739	862,541.76	2,030,583.66	1,011.10	EORG	1,011.10							
1739	863,615.09	2,031,835.57	960.45	EL SLPT SUB	960.45							
1739	863,615.09	2,031,835.57	960.45	SLPT SUB	960.45	962.48	2.03					
1740	862,495.50	2,030,566.90	1,010.60	EORG	1,010.60							
1740	863,601.18	2,031,903.49	966.21	EL SLPB SUB	966.21							
1740	863,601.18	2,031,903.49	966.21	SLPB SUB	966.21							
1741	862,490.44	2,030,577.21	1,011.42	CLRD	1,011.42							
1741	863,601.23	2,031,901.01	965.82	BL SLPT SUB	965.82							
1741	863,601.23	2,031,901.01	965.82	SLPT SUB	965.82							
1742	862,483.90	2,030,589.77	1,011.85	EORG1	1,011.85							
1742	863,570.12	2,031,904.79	965.71	EL SLPT SUB	965.71	967.74	2.02					
1742	863,570.12	2,031,904.79	965.94	SLPT SUB	965.94	967.97	2.04					
1743	862,435.51	2,030,552.00	1,011.96	EORG1	1,011.96							
1743	863,569.90	2,031,902.48	965.54	BL SLPB SUB	965.54							
1743	863,569.90	2,031,902.48	965.54	SLPB SUB	965.54	967.60	2.06					
1744	862,444.90	2,030,543.89	1,011.21	CLRD	1,011.21							
1744	863,601.11	2,031,892.78	962.78	SLPB SUB	962.78							
1744	863,601.11	2,031,892.78	962.78	SLPB SUB	962.78	964.90	2.13					
1745	862,453.21	2,030,536.29	1,010.24	EORG	1,010.24							
1745	863,627.19	2,031,885.85	960.76	SLPB SUB	960.76							
1745	863,627.19	2,031,885.85	960.76	SLPB SUB	960.76							
1746	862,429.47	2,030,488.47	1,010.98	EL EORG	1,010.98							
1747	862,416.99	2,030,491.65	1,011.82	CLRD	1,011.82							
1748	862,401.95	2,030,495.52	1,011.83	EL EORG1	1,011.83							
1800	863,615.00	2,031,877.25	960.06	BL SLPB	960.06	963.27	3.22					
1801	863,633.63	2,031,879.27	959.89	SLPB	959.89	962.20	2.31					
1802	863,672.14	2,031,835.23	960.44	SLPB	960.44	962.47	2.04					
1803	863,668.21	2,031,834.80	959.80	BL SLPT	959.80							
1804	863,641.99	2,031,834.57	960.01	SLPT	960.01	962.06	2.05					
1805	863,668.63	2,031,832.18	959.57	BL GRBR	959.57	961.61	2.04					
1806	863,642.01	2,031,804.71	950.45	GRBR	950.45	952.65	2.21	956.85	6.41			
1808	863,606.26	2,031,769.27	938.23	SLPB2#GRBR	938.23							
1809	863,609.88	2,031,699.45	939.53	SLPB2 SUB	939.53	941.99	2.46	945.98	6.46			
1810	863,673.20	2,031,799.20	960.65	SLPB	960.65	962.77	2.12					
1811	863,674.28	2,031,738.85	960.77	SLPB	960.77	963.19	2.42					
1812	863,742.06	2,031,738.43	983.49	SLPB	983.49	985.95	2.46	990.05	6.56			
1813	863,774.82	2,031,738.34	994.57	SLPB	994.57							
1814	863,615.51	2,031,886.48	961.52	BL SLPT	961.52	963.66	2.14					

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
1815	863,634.80	2,031,895.78	963.72	SLPT	963.72	965.78	2.06					
1816	863,657.49	2,031,881.10	966.28	SLPT	966.28							
1817	863,680.03	2,031,869.05	968.81	SLPT	968.81							
1818	863,689.26	2,031,850.34	971.58	SLPT	971.58							
1819	863,693.41	2,031,784.17	973.99	SLPT	973.99							
1820	863,689.28	2,031,747.65	972.13	SLPT	972.13							
1821	863,737.47	2,031,748.62	987.47	SLPT	987.47							
1822	863,759.06	2,031,747.38	994.06	SLPT	994.06							
1823	863,609.08	2,030,899.98	939.50	BL SLPB	939.50	941.79	2.29	945.90	6.40			
1824	863,605.63	2,030,832.94	938.56	BL GRBR&SLPB	938.56	941.38	2.82					
1825	863,542.49	2,030,830.41	938.04	EL SLPB	938.04	941.50	3.45					
1826	863,641.44	2,030,794.60	950.19	GRBR	950.19			956.85	6.66			
1827	863,667.71	2,030,768.58	959.47	EL GRBR	959.47			966.09	6.62			
1828	863,775.99	2,030,803.36	994.89	BL SLPB	994.89							
1829	863,741.98	2,030,804.14	983.64	SLPB	983.64			990.07	6.43	990.07	0.63	
1830	863,673.36	2,030,804.33	960.61	SLPB	960.61			966.62	6.01			
1831	863,672.77	2,030,764.02	960.69	SLPB	960.69							
1832	863,661.90	2,030,761.63	961.09	SLPB	961.09			967.73	6.64			
1833	863,660.50	2,030,699.34	981.92	SLPB	981.92			987.93	6.01			
1834	863,660.38	2,030,615.36	1,010.16	SLPB	1,010.16							
1835	863,668.30	2,030,630.85	1,011.34	BL SLPT	1,011.34							
1836	863,670.17	2,030,696.22	989.21	SLPT	989.21							
1837	863,675.41	2,030,723.87	984.31	SLPT	984.31							
1838	863,696.65	2,030,724.57	985.96	SLPT	985.96							
1839	863,685.92	2,030,769.92	972.00	SLPT	972.00							
1840	863,686.91	2,030,798.35	970.20	SLPT	970.20							
1841	863,741.52	2,030,798.86	988.52	SLPT	988.52							
1842	863,771.28	2,030,799.29	996.61	EL SLPT	996.61							
1900	863,781.82	2,031,699.07	996.90	BL SLPT	996.90							
1901	863,797.57	2,031,699.50	997.23	GRND	997.23							
1902	863,796.28	2,031,599.50	997.20	GRND	997.20							
1903	863,781.99	2,031,599.35	996.92	SLPT	996.92							
1904	863,782.27	2,031,499.63	996.96	SLPT	996.96							
1905	863,797.75	2,031,499.47	997.20	GRND	997.20							
1906	863,794.98	2,031,399.45	997.18	GRND	997.18							
1907	863,781.09	2,031,399.53	996.88	SLPT	996.88							
1908	863,782.18	2,031,299.39	996.93	SLPT	996.93							
1909	863,795.76	2,031,300.46	997.13	GRND	997.13							
1910	863,795.13	2,031,199.57	997.23	GRND	997.23							
1911	863,781.85	2,031,199.47	996.88	SLPT	996.88							
1912	863,780.93	2,031,099.54	996.79	SLPT	996.79							

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
1913	863,796.27	2,031,099.43	997.18	GRND	997.18							
1914	863,795.66	2,030,999.50	997.22	GRND	997.22							
1915	863,780.29	2,030,999.54	996.74	SLPT	996.74							
1916	863,780.94	2,030,899.38	997.05	SLPT	997.05							
1917	863,796.06	2,030,899.52	997.25	GRND	997.25							
1918	863,791.87	2,030,799.47	998.13	GRND	998.13							
1919	863,780.07	2,030,819.27	996.99	EL SLPT	996.99							
1936	862,442.05	2,030,612.89	1,009.74	BL SLPT SUB	1,009.74	1,011.95	2.21					
1937	862,541.75	2,030,615.37	1,009.81	SLPT SUB	1,009.81	1,011.38	1.57					
1938	862,642.04	2,030,615.13	1,010.03	SLPT SUB	1,010.03	1,011.57	1.54					
1939	862,742.08	2,030,614.50	1,010.02	SLPT SUB	1,010.02	1,011.59	1.57					
1940	862,842.02	2,030,615.62	1,009.72	SLPT SUB	1,009.72	1,011.53	1.81					
1941	862,941.89	2,030,614.81	1,010.01	SLPT SUB	1,010.01	1,011.60	1.59					
1942	863,041.81	2,030,614.27	1,010.05	SLPT SUB	1,010.05	1,011.56	1.51					
1943	863,142.06	2,030,614.85	1,009.95	SLPT SUB	1,009.95	1,011.68	1.73					
1944	863,242.08	2,030,615.23	1,009.82	SLPT SUB	1,009.82	1,011.71	1.89					
1945	863,342.17	2,030,615.41	1,009.82	SLPT SUB	1,009.82	1,011.68	1.86					
1946	863,442.08	2,030,615.04	1,009.85	SLPT SUB	1,009.85	1,011.75	1.90					
1947	863,541.94	2,030,615.36	1,009.80	SLPT SUB	1,009.80	1,011.50	1.70					
1948	863,641.89	2,030,615.95	1,009.87	SLPT SUB	1,009.87	1,011.74	1.88					
2322	863,742.10	2,031,699.58	983.68	GRND SUB	983.68	986.00	2.32	990.09	6.41	990.09	0.57	
2336	863,642.16	2,030,799.50	950.28	GRND	950.28	952.67	2.39	956.45	6.18			
2344	863,641.96	2,031,599.46	949.99	GRND	949.99	952.54	2.55	956.41	6.42			
2345	863,641.99	2,031,699.27	950.02	GRND SUB	950.02	952.51	2.49					
2560	863,441.93	2,031,767.72	938.31	SLPB SUB	938.31							
2562	863,242.13	2,031,767.83	938.43	SLPB SUB	938.43							
2700	862,487.70	2,031,699.44	967.03	BL SLPB SUB	967.03	969.25	2.21	982.68	15.64			
2701	862,594.52	2,031,699.67	964.97	BL SLPT	964.97	967.05	2.09	971.74	6.77			
2702	862,599.62	2,031,799.63	965.03	SLPT	965.03	967.31	2.28	971.70	6.68			
2703	862,493.52	2,031,799.47	967.01	SLPB SUB	967.01	969.08	2.07	982.92	15.92			
2704	862,495.48	2,031,867.64	967.17	SLPB SUB	967.17	969.23	2.05	983.43	16.25			
2705	862,505.22	2,031,895.66	967.14	SLPB SUB	967.14	969.49	2.35	983.61	16.47			
2706	862,541.97	2,031,932.10	967.16	SLPB SUB	967.16	969.33	2.17	983.47	16.31			
2707	862,567.16	2,031,954.99	966.98	SLPB SUB	966.98	969.37	2.39	983.72	16.75			
2708	862,642.18	2,031,955.50	967.28	SLPB SUB	967.28	969.37	2.09	983.51	16.23			
2709	862,602.30	2,031,848.24	965.10	SLPT SUB	965.10	967.30	2.20					
2710	862,741.86	2,031,848.88	965.06	SLPT SUB	965.06	967.06	2.00					
2711	862,742.10	2,031,956.52	967.57	SLPB SUB	967.57	969.63	2.06					
2712	862,842.16	2,031,956.55	967.53	SLPB SUB	967.53	969.55	2.03	983.61	16.08			
2713	862,842.15	2,031,849.01	965.02	SLPT SUB	965.02	967.12	2.10					
2714	862,942.03	2,031,849.31	965.06	SLPT SUB	965.06	967.06	2.00					

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
2715	862,941.94	2,031,955.98	967.24	SLPB SUB	967.24	969.48	2.24	983.28	16.04			
2716	863,042.00	2,031,955.18	967.26	SLPB SUB	967.26	969.31	2.06	983.60	16.34			
2717	863,042.00	2,031,849.10	965.04	SLPT SUB	965.04	967.28	2.25					
2718	863,142.13	2,031,849.32	965.04	SLPT SUB	965.04	967.09	2.05					
2719	863,142.21	2,031,955.25	967.35	EL SLPB SUB	967.35	969.37	2.02	987.28	19.94			
2720	863,241.67	2,031,848.38	964.85	SLPT SUB	964.85	966.93	2.08	983.62	18.77			
2721	862,607.99	2,031,842.78	963.47	BL GRBR SUB	963.47	965.64	2.17	978.31	14.84			
2722	862,647.93	2,031,799.91	949.16	GRBR SUB	949.16	951.27	2.10	955.58	6.42			
2723	862,679.29	2,031,766.40	938.35	BL SLPB SUB	938.35							
2724	862,676.79	2,031,742.86	938.74	SLPB SUB	938.74							
2725	862,672.19	2,031,699.43	939.41	SLPB SUB	939.41	941.41	2.00					
2726	862,631.48	2,031,800.20	954.14	GRND SUB	954.14	956.28	2.15	960.58	6.45			
2807	863,541.96	2,031,768.35	938.26	BL SLPB2	938.26							
6007	863,782.50	2,031,733.62	995.04	MISC LINER	995.04	996.55	1.52					
6008	863,782.62	2,031,680.61	995.11	MISC LINER	995.11							
6009	863,782.49	2,031,625.69	995.18	MISC LINER	995.18	996.71	1.53					
6010	863,782.36	2,031,571.74	995.15	MISC LINER	995.15							
6011	863,782.43	2,031,518.51	995.09	MISC LINER	995.09	996.63	1.54					
6012	863,782.57	2,031,464.20	995.05	MISC LINER	995.05							
6013	863,782.97	2,031,408.46	994.98	MISC LINER	994.98	996.49	1.51					
6014	863,783.50	2,031,349.42	995.09	MISC LINER	995.09							
6015	863,783.83	2,031,297.09	995.03	MISC LINER	995.03	996.55	1.51					
6016	863,783.29	2,031,245.85	995.03	MISC LINER	995.03							
6017	863,782.28	2,031,196.47	995.09	MISC LINER	995.09	996.62	1.53					
6018	863,782.34	2,031,142.19	995.17	MISC LINER	995.17							
6019	863,782.54	2,031,088.34	995.12	MISC LINER	995.12	996.62	1.51					
6020	863,782.62	2,031,037.59	995.14	MISC LINER	995.14							
6021	863,782.44	2,030,982.90	995.24	MISC LINER	995.24	996.75	1.51					
6022	863,782.42	2,030,930.18	995.21	MISC LINER	995.21							
6023	863,782.10	2,030,880.25	995.15	MISC LINER	995.15	996.68	1.52					
6024	863,781.89	2,030,835.68	995.28	MISC LINER	995.28							
6025	863,782.15	2,030,803.16	995.32	MISC LINER	995.32	996.86	1.53					
6026	863,772.50	2,030,805.42	994.17	MISC LINER	994.17							
6027	863,735.22	2,030,806.12	981.71	MISC LINER	981.71							
6028	863,695.89	2,030,806.65	968.54	MISC LINER	968.54							
6029	863,671.35	2,030,807.04	960.37	MISC LINER	960.37							
6030	863,671.45	2,030,765.51	960.62	MISC LINER	960.62							
6031	863,656.76	2,030,764.67	960.62	MISC LINER	960.62							
6032	863,656.27	2,030,723.63	974.06	MISC LINER	974.06							
6033	863,656.05	2,030,680.96	988.21	MISC LINER	988.21							
6034	863,656.27	2,030,635.92	1,003.28	MISC LINER	1,003.28							

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
6035	863,656.34	2,030,614.62	1,010.63	MISC LINER	1,010.63							
6036	863,656.09	2,030,606.40	1,010.05	MISC LINER	1,010.05	1,011.69	1.64					
6037	863,606.14	2,030,606.29	1,010.04	MISC LINER	1,010.04							
6038	863,559.81	2,030,606.45	1,010.05	MISC LINER	1,010.05	1,011.64	1.59					
6039	863,508.87	2,030,606.95	1,010.12	MISC LINER	1,010.12							
6040	863,461.33	2,030,606.87	1,010.18	MISC LINER	1,010.18	1,011.71	1.53					
6041	863,410.46	2,030,607.09	1,010.27	MISC LINER	1,010.27							
6042	863,360.92	2,030,606.83	1,010.11	MISC LINER	1,010.11	1,011.66	1.55					
6043	863,313.36	2,030,606.74	1,010.15	MISC LINER	1,010.15							
6044	863,262.66	2,030,607.22	1,010.34	MISC LINER	1,010.34	1,011.89	1.54					
6045	863,212.21	2,030,607.20	1,010.02	MISC LINER	1,010.02							
6046	863,164.57	2,030,607.21	1,009.91	MISC LINER	1,009.91	1,011.66	1.75					
6047	863,112.59	2,030,607.00	1,010.25	MISC LINER	1,010.25							
6048	863,060.28	2,030,606.75	1,010.09	MISC LINER	1,010.09	1,011.61	1.52					
6049	863,022.85	2,030,606.59	1,009.96	MISC LINER	1,009.96							
6050	862,972.65	2,030,607.17	1,010.09	MISC LINER	1,010.09							
6051	862,924.62	2,030,607.15	1,010.19	MISC LINER	1,010.19	1,011.71	1.52					
6052	862,876.01	2,030,607.01	1,010.24	MISC LINER	1,010.24							
6053	862,825.97	2,030,606.97	1,010.05	MISC LINER	1,010.05	1,011.70	1.65					
6054	862,783.92	2,030,606.72	1,009.96	MISC LINER	1,009.96							
6055	862,743.51	2,030,606.79	1,010.13	MISC LINER	1,010.13	1,011.64	1.51					
6056	862,687.32	2,030,606.33	1,010.12	MISC LINER	1,010.12							
6057	862,642.15	2,030,606.23	1,010.01	MISC LINER	1,010.01	1,011.54	1.53					
6058	862,588.95	2,030,607.07	1,010.26	MISC LINER	1,010.26							
6059	862,541.93	2,030,606.42	1,010.10	MISC LINER	1,010.10	1,011.62	1.52					
6060	862,520.39	2,030,606.29	1,010.02	MISC LINER	1,010.02							
6061	862,491.45	2,030,599.88	1,009.79	MISC LINER	1,009.79							
6062	862,463.09	2,030,589.47	1,009.84	MISC LINER	1,009.84	1,011.60	1.75					
6063	862,438.67	2,030,575.05	1,009.84	MISC LINER	1,009.84							
6064	862,419.06	2,030,550.60	1,010.17	MISC LINER	1,010.17	1,011.71	1.54					
6065	862,420.28	2,030,586.19	1,010.03	MISC LINER	1,010.03							
6066	862,421.41	2,030,617.90	1,009.85	MISC LINER	1,009.85	1,011.52	1.67					
8138	862,416.19	2,030,699.44	1,003.39	SLPT CLAY FIN	1,003.39	1,005.40	2.01					
8139	862,404.10	2,030,698.78	1,003.43	MISC CLAY FIN	1,003.43							
8140	862,399.84	2,030,749.68	999.32	MISC CLAY FIN	999.32							
8141	862,412.77	2,030,750.02	999.03	SLPT CLAY FIN	999.03							
8142	862,408.27	2,030,799.20	995.34	SLPT CLAY FIN	995.34	997.41	2.07					
8143	862,395.21	2,030,798.49	995.54	MISC CLAY FIN	995.54							
8144	862,391.25	2,030,849.30	991.31	MISC CLAY FIN	991.31							
8145	862,403.57	2,030,848.52	991.29	SLPT CLAY FIN	991.29							
8146	862,399.89	2,030,899.51	987.20	SLPT CLAY FIN	987.20	989.35	2.15					

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
8147	862,387.79	2,030,899.76	987.18	MISC CLAY FIN	987.18							
8148	862,385.94	2,030,938.97	984.33	MISC CLAY FIN	984.33							
8149	862,397.16	2,030,939.18	984.06	SLPT CLAY FIN	984.06	986.42	2.36					
8150	862,400.28	2,030,999.34	984.01	SLPT CLAY FIN	984.01	986.14	2.13					
8151	862,388.37	2,031,000.30	983.92	MISC CLAY FIN	983.92							
8152	862,389.47	2,031,049.84	983.99	MISC CLAY FIN	983.99							
8153	862,402.77	2,031,048.55	983.93	SLPT CLAY FIN	983.93							
8154	862,405.53	2,031,099.29	984.05	SLPT CLAY FIN	984.05	986.09	2.04					
8155	862,390.47	2,031,100.54	984.03	MISC CLAY FIN	984.03							
8156	862,393.63	2,031,149.55	984.08	MISC CLAY FIN	984.08							
8157	862,408.04	2,031,148.04	983.99	SLPT CLAY FIN	983.99							
8158	862,410.23	2,031,199.50	983.98	SLPT CLAY FIN	983.98	986.17	2.19					
8159	862,396.71	2,031,201.08	983.99	MISC CLAY FIN	983.99							
8160	862,399.14	2,031,249.18	983.97	MISC CLAY FIN	983.97							
8161	862,412.80	2,031,247.28	984.04	SLPT CLAY FIN	984.04							
8162	862,416.19	2,031,299.44	983.93	SLPT CLAY FIN	983.93	986.02	2.10					
8163	862,402.33	2,031,300.17	984.07	MISC CLAY FIN	984.07							
8164	862,404.14	2,031,349.69	984.11	MISC CLAY FIN	984.11							
8165	862,418.24	2,031,348.15	984.01	SLPT CLAY FIN	984.01							
8166	862,420.59	2,031,399.54	983.99	SLPT CLAY FIN	983.99	986.18	2.20					
8167	862,405.78	2,031,400.89	984.25	MISC CLAY FIN	984.25							
8168	862,407.42	2,031,449.45	984.19	MISC CLAY FIN	984.19							
8169	862,423.13	2,031,447.61	984.03	SLPT CLAY FIN	984.03							
8170	862,425.62	2,031,499.52	983.98	SLPT CLAY FIN	983.98	986.28	2.30					
8171	862,410.81	2,031,500.93	984.10	MISC CLAY FIN	984.10							
8172	862,413.17	2,031,549.53	984.08	MISC CLAY FIN	984.08							
8173	862,428.62	2,031,547.86	983.95	SLPT CLAY FIN	983.95							
8174	862,431.36	2,031,599.42	984.05	SLPT CLAY FIN	984.05	986.43	2.38					
8175	862,416.87	2,031,600.19	984.01	MISC CLAY FIN	984.01							
8176	862,419.12	2,031,649.59	984.07	MISC CLAY FIN	984.07							
8177	862,433.96	2,031,648.30	983.99	SLPT CLAY FIN	983.99							
8178	862,436.85	2,031,699.34	983.99	SLPT CLAY FIN	983.99	986.14	2.15					
8179	862,421.86	2,031,700.39	983.95	MISC CLAY FIN	983.95							
8180	862,424.63	2,031,749.40	984.03	MISC CLAY FIN	984.03							
8181	862,439.27	2,031,748.72	984.06	SLPT CLAY FIN	984.06							
8182	862,441.62	2,031,799.37	984.10	SLPT CLAY FIN	984.10	986.26	2.17					
8183	862,427.50	2,031,800.47	984.10	MISC CLAY FIN	984.10							
8184	862,429.57	2,031,849.31	984.10	MISC CLAY FIN	984.10							
8185	862,444.22	2,031,849.33	984.17	SLPT CLAY FIN	984.17							
8186	862,445.79	2,031,899.27	984.09	SLPT CLAY FIN	984.09							
8187	862,435.24	2,031,898.58	984.19	MISC CLAY FIN	984.19							

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
8188	862,436.40	2,031,910.73	984.24	MISC CLAY FIN	984.24							
8189	862,447.24	2,031,910.03	984.17	SLPT CLAY FIN	984.17	986.29	2.12					
8190	862,502.29	2,031,964.62	984.03	SLPT CLAY FIN	984.03	986.23	2.20					
8191	862,495.68	2,031,971.77	984.02	MISC CLAY FIN	984.02							
8192	862,529.80	2,032,008.12	984.30	MISC CLAY FIN	984.30							
8193	862,545.58	2,032,014.33	984.24	MISC CLAY FIN	984.24							
8194	862,542.64	2,032,005.46	984.09	SLPT CLAY FIN	984.09	986.29	2.20					
8195	862,592.08	2,032,006.16	983.98	SLPT CLAY FIN	983.98							
8196	862,591.82	2,032,016.00	983.95	MISC CLAY FIN	983.95							
8197	862,642.09	2,032,016.27	984.10	MISC CLAY FIN	984.10							
8198	862,642.02	2,032,006.22	984.02	SLPT CLAY FIN	984.02	986.29	2.27					
8199	862,692.01	2,032,006.24	984.04	SLPT CLAY FIN	984.04							
8200	862,692.21	2,032,015.43	984.14	MISC CLAY FIN	984.14							
8201	862,741.95	2,032,015.78	984.09	MISC CLAY FIN	984.09							
8202	862,741.90	2,032,006.25	984.08	SLPT CLAY FIN	984.08	986.23	2.16					
8203	862,792.05	2,032,006.63	984.09	SLPT CLAY FIN	984.09							
8204	862,792.15	2,032,018.17	984.12	MISC CLAY FIN	984.12							
8205	862,841.88	2,032,015.79	984.13	MISC CLAY FIN	984.13							
8206	862,842.01	2,032,006.69	984.16	SLPT CLAY FIN	984.16	986.42	2.26					
8207	862,891.93	2,032,006.10	984.04	SLPT CLAY FIN	984.04							
8208	862,891.94	2,032,014.61	984.17	MISC CLAY FIN	984.17							
8209	862,941.77	2,032,012.99	984.18	MISC CLAY FIN	984.18							
8210	862,942.00	2,032,006.05	984.12	SLPT CLAY FIN	984.12	986.27	2.15					
8211	862,419.44	2,030,665.29	1,005.99	SLPT CLAY FIN	1,005.99							
8212	862,407.98	2,030,664.90	1,006.01	MISC CLAY FIN	1,006.01							
8213	862,409.58	2,030,617.57	1,010.03	MISC CLAY FIN	1,010.03							
8214	862,420.16	2,030,618.75	1,009.80	SLPT CLAY FIN	1,009.80	1,011.82	2.02					
8215	862,423.75	2,030,566.10	1,010.06	MISC CLAY FIN	1,010.06							
8216	862,410.03	2,030,566.17	1,010.36	MISC CLAY FIN	1,010.36							
8217	862,410.76	2,030,527.43	1,011.05	MISC CLAY FIN	1,011.05							
8218	862,422.22	2,030,527.38	1,010.99	MISC CLAY FIN	1,010.99							
8219	863,042.22	2,031,991.68	979.12	SLPT1 CLAY BARR	979.12	981.15	2.03					
8222	863,092.13	2,031,991.72	979.15	SLPT1 CLAY BARR	979.15	981.34	2.19					
8223	863,142.01	2,031,991.00	979.06	SLPT1 CLAY	979.06	981.32	2.25					
8227	863,242.16	2,031,991.60	979.19	SLPT1 CLAY	979.19	981.20	2.01					
8231	863,342.06	2,031,991.47	979.06	SLPT1 CLAY	979.06	981.20	2.14					
8234	863,392.00	2,031,991.80	979.05	SLPT1 CLAY	979.05	981.24	2.20					
8235	863,442.14	2,031,991.08	979.16	SLPT1 CLAY	979.16							
8239	863,542.31	2,031,983.74	984.07	SLPT1 CLAY	984.07							
8259	862,990.51	2,032,005.97	984.00	SLPT FIN CLAY	984.00							
8260	862,990.57	2,032,018.46	983.95	MISC FIN CLAY	983.95							

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
8261	863,042.03	2,032,018.40	984.08	MISC FIN CLAY	984.08							
8262	863,041.66	2,032,006.47	984.18	SLPT FIN CLAY	984.18	986.44	2.27					
8263	863,092.14	2,032,006.58	984.17	SLPT FIN CLAY	984.17							
8264	863,141.76	2,032,006.45	984.23	SLPT FIN CLAY	984.23	986.38	2.15					
8265	863,142.10	2,032,018.45	984.11	MISC FIN CLAY	984.11							
8266	863,192.11	2,032,018.48	983.98	MISC FIN CLAY	983.98							
8267	863,192.15	2,032,006.52	984.23	SLPT FIN CLAY	984.23							
8268	863,242.38	2,032,006.54	984.15	SLPT FIN CLAY	984.15	986.31	2.16					
8270	863,192.26	2,032,011.25	984.20	MISC FIN CLAY	984.20							
8271	863,142.21	2,032,010.93	984.14	MISC FIN CLAY	984.14							
8272	863,091.98	2,032,011.74	984.28	MISC FIN CLAY	984.28							
8273	863,042.37	2,032,011.10	984.03	MISC FIN CLAY	984.03							
8274	863,242.08	2,032,011.05	984.31	MISC FIN CLAY	984.31							
8275	863,242.20	2,032,019.64	984.24	MISC FIN CLAY	984.24							
8276	863,292.20	2,032,010.80	984.30	MISC FIN CLAY	984.30							
8277	863,291.92	2,032,019.27	984.36	MISC FIN CLAY	984.36							
8278	863,292.21	2,032,005.96	984.24	SLPT FIN CLAY	984.24							
8279	863,341.76	2,032,006.77	984.30	SLPT FIN CLAY	984.30	986.40	2.10					
8280	863,342.04	2,032,011.04	984.12	MISC FIN CLAY	984.12							
8281	863,341.88	2,032,019.10	984.15	MISC FIN CLAY	984.15							
8282	863,392.28	2,032,010.55	984.15	MISC FIN CLAY	984.15							
8283	863,392.05	2,032,018.22	984.17	MISC FIN CLAY	984.17							
8284	863,391.95	2,032,006.59	984.28	SLPT FIN CLAY	984.28							
8285	863,441.79	2,032,006.42	984.05	SLPT FIN CLAY	984.05	986.18	2.13					
8286	863,442.15	2,032,010.88	984.11	MISC FIN CLAY	984.11							
8287	863,442.02	2,032,019.08	984.09	MISC FIN CLAY	984.09							
8288	863,481.82	2,032,009.93	984.16	MISC FIN CLAY	984.16							
8289	863,482.02	2,032,018.11	984.17	MISC FIN CLAY	984.17							
8290	863,481.17	2,032,006.22	984.25	SLPT FIN CLAY	984.25	986.42	2.17					
8291	863,541.49	2,031,999.14	988.73	SLPT FIN CLAY	988.73							
8292	863,542.11	2,032,004.29	988.97	MISC FIN CLAY	988.97							
8293	863,542.78	2,032,010.46	989.04	MISC FIN CLAY	989.04							
8294	863,592.01	2,031,997.97	993.02	MISC FIN CLAY	993.02							
8295	863,592.57	2,032,005.39	993.04	MISC FIN CLAY	993.04							
8296	863,591.40	2,031,992.83	992.77	SLPT FIN CLAY	992.77	994.99	2.22					
8297	863,618.17	2,031,991.33	994.77	SLPT FIN CLAY	994.77							
8298	863,617.45	2,031,994.61	994.92	MISC FIN CLAY	994.92							
8299	863,617.24	2,032,003.29	994.98	MISC FIN CLAY	994.98							
8300	863,638.21	2,032,003.17	995.51	MISC FIN CLAY	995.51							
8301	863,637.90	2,031,990.25	995.26	SLPT FIN CLAY	995.26	997.48	2.23					
9000	863,612.67	2,030,822.28		BL SLPB SAND		943.45						

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
9001	863,611.74	2,030,835.13		BL SLPT SAND		943.28						
9002	863,605.36	2,030,847.59		BL SLPB1 SAND		941.14						
9003	863,541.84	2,030,847.95		SLPB1 SAND		940.60						
9004	863,541.80	2,030,834.33		SLPT SAND		943.35						
9005	863,542.30	2,030,822.28		SLPB SAND		943.39						
9006	863,481.05	2,030,822.23		SLPB SAND		943.46						
9007	863,441.66	2,030,823.36		SLPB SAND		943.49						
9008	863,341.99	2,030,822.95		EL SLPB SAND		943.56						
9009	863,342.46	2,030,836.40		BL SLPT2 SAND		943.28						
9010	863,342.64	2,030,847.39		BL SLPB2 SAND		940.90						
9011	863,442.22	2,030,846.51		SLPB2 SAND		940.90						
9012	863,441.70	2,030,835.20		SLPT2 SAND		943.21						
9013	863,476.16	2,030,836.59		SLPT2 SAND		943.28						
9014	863,460.51	2,030,846.32		SLPB2 SAND		940.88						
9015	863,489.26	2,030,836.95		SLPT SAND		943.46						
9016	863,484.22	2,030,851.38		SLPT SAND		943.82						
9017	863,476.70	2,030,850.34		SLPT2 SAND		943.64						
9018	863,498.75	2,030,850.30		SLPB1 SAND		941.12						
9019	863,494.01	2,030,899.86		SLPB1 SAND		941.33						
9020	863,483.60	2,030,899.85		SLPT SAND		944.86						
9021	863,476.85	2,030,899.58		SLPT2 SAND		944.75						
9022	863,466.30	2,030,900.44		SLPB2 SAND		941.60						
9023	863,466.59	2,030,999.64		SLPB2 SAND		943.52						
9024	863,476.35	2,030,999.55		SLPT2 SAND		946.23						
9025	863,483.07	2,030,999.94		SLPT SAND		946.42						
9026	863,492.68	2,031,000.29		SLPB1 SAND		944.03						
9027	863,493.12	2,031,099.13		SLPB1 SAND		945.89						
9028	863,481.95	2,031,098.89		SLPT SAND		948.47						
9029	863,476.01	2,031,098.79		SLPT2 SAND		948.24						
9030	863,466.28	2,031,098.91		SLPB2 SAND		945.37						
9031	863,466.25	2,031,199.34		SLPB2 SAND		947.37						
9032	863,476.01	2,031,199.71		SLPT2 SAND		950.20						
9033	863,484.32	2,031,200.37		SLPT SAND		950.39						
9034	863,494.85	2,031,200.17		SLPB1 SAND		947.68						
20200	862,803.07	2,031,205.05		BL SLPB SAND		947.88						
20201	862,810.38	2,031,205.08		BL SLPT SAND		950.52						
20202	862,818.09	2,031,205.79		BL SLPT1 SAND		950.63						
20203	862,827.00	2,031,205.82		BL SLPB1 SAND		947.58						
20204	862,825.40	2,031,098.17		SLPB1 SAND		945.35						
20205	862,817.11	2,031,098.51		SLPT1 SAND		948.55						
20206	862,810.14	2,031,098.51		SLPT SAND		948.26						

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
20207	862,802.18	2,031,098.90		SLPB SAND		945.50						
20208	862,801.09	2,030,996.71		SLPB SAND		943.41						
20209	862,809.33	2,030,996.06		SLPT SAND		946.33						
20210	862,817.03	2,030,996.15		SLPT1 SAND		946.59						
20211	862,825.52	2,030,996.14		SLPB1 SAND		943.02						
20212	862,824.93	2,030,897.38		SLPB1 SAND		941.52						
20213	862,815.87	2,030,898.35		SLPT1 SAND		944.82						
20214	862,808.56	2,030,898.59		SLPT SAND		944.84						
20215	862,799.70	2,030,898.34		SLPB SAND		941.50						
20216	862,800.09	2,030,853.09		SLPB SAND		940.92						
20217	862,797.31	2,030,846.32		SLPB SAND		940.94						
20218	862,807.68	2,030,840.46		SLPT SAND		943.36						
20219	862,798.64	2,030,835.91		SLPT SAND		943.44						
20220	862,741.58	2,030,835.26		SLPT SAND		943.40						
20221	862,741.83	2,030,845.60		SLPB SAND		940.26						
20222	862,686.90	2,030,844.26		EL SLPB SAND		940.72						
20223	862,686.76	2,030,835.71		EL SLPT SAND		943.47						
20224	862,688.21	2,030,821.80		BL SLPB SAND		943.22						
20225	862,741.90	2,030,822.03		SLPB SAND		943.40						
20226	862,846.23	2,030,822.82		SLPB SAND		943.42						
20227	862,815.23	2,030,854.31		SLPT1 SAND		943.97						
20228	862,821.09	2,030,835.67		SLPT1 SAND		943.15						
20229	862,824.38	2,030,861.41		SLPB1 SAND		940.98						
20230	862,827.98	2,030,845.91		SLPB1 SAND		940.99						
20231	862,849.43	2,030,845.72		SLPB1 SAND		940.63						
20232	862,942.48	2,030,845.70		SLPB1 SAND		940.35						
20233	862,942.01	2,030,836.32		SLPT1 SAND		943.37						
20234	862,942.18	2,030,821.83		SLPB SAND		943.47						
20235	863,042.74	2,030,822.16		SLPB SAND		943.49						
20236	863,042.66	2,030,835.69		SLPT1 SAND		943.34						
20237	863,041.77	2,030,845.11		SLPB1 SAND		940.55						
20238	863,116.39	2,030,847.52		SLPB1 SAND		940.44						
20239	863,117.24	2,030,836.11		SLPT1 SAND		943.21						
20240	863,129.82	2,030,850.21		SLPT1 SAND		943.72						
20241	863,137.90	2,030,899.77		SLPT1 SAND		943.39						
20242	863,132.22	2,030,899.28		SLPB1 SAND		941.19						
20243	863,140.88	2,030,822.41		SLPB SAND		943.52						
20244	863,240.99	2,030,823.91		EL SLPB SAND		943.38						
20245	863,240.35	2,030,835.86		BL SLPT SAND		943.17						
20246	863,240.32	2,030,845.98		BL SLPB SAND		940.42						
20247	863,152.59	2,030,845.10		SLPB SAND		940.72						

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
20248	863,148.91	2,030,836.68		SLPT SAND		943.17						
20249	863,144.44	2,030,844.98		SLPT SAND		943.35						
20250	863,147.38	2,030,899.53		SLPT SAND		943.42						
20251	863,153.43	2,030,899.28		SLPB SAND		941.38						
20252	863,154.37	2,030,998.14		SLPB SAND		941.54						
20253	863,148.20	2,030,998.39		SLPT SAND		943.42						
20254	863,140.68	2,030,998.41		SLPT1 SAND		943.25						
20255	863,133.11	2,030,998.36		SLPB1 SAND		940.87						
20256	863,133.73	2,031,100.99		SLPB1 SAND		940.65						
20257	863,142.22	2,031,100.49		SLPT1 SAND		943.38						
20258	863,150.42	2,031,100.98		SLPT SAND		943.66						
20259	863,157.42	2,031,100.99		SLPB SAND		942.02						
20260	862,631.24	2,030,845.45		SLPB SAND		940.41						
20261	862,620.95	2,030,838.35		SLPT SAND		943.60						
20262	862,622.20	2,030,822.60		SLPB1 SAND		943.39						
20263	863,135.09	2,031,198.20		BL SLPB SAND		940.87						
20264	863,141.90	2,031,197.77		BL SLPT SAND		943.26						
20265	863,149.99	2,031,198.02		BL SLPT1 SAND		943.34						
20266	863,156.56	2,031,197.95		BL SLPB1 SAND		941.92						
20267	863,154.17	2,031,299.19		SLPB1 SAND		942.01						
20268	863,148.22	2,031,299.65		SLPT1 SAND		943.45						
20269	863,141.64	2,031,299.58		SLPT SAND		943.23						
20270	863,133.97	2,031,299.36		SLPB SAND		940.97						
20271	863,134.37	2,031,398.14		SLPB SAND		940.78						
20272	863,141.39	2,031,398.17		SLPT SAND		943.05						
20273	863,148.31	2,031,398.58		SLPT1 SAND		943.21						
20274	863,154.44	2,031,398.50		SLPB1 SAND		941.62						
20275	863,154.22	2,031,499.16		SLPB1 SAND		941.84						
20276	863,147.43	2,031,499.02		SLPT1 SAND		943.18						
20277	863,142.39	2,031,498.57		SLPT SAND		943.22						
20278	863,134.49	2,031,499.28		SLPB SAND		941.02						
20279	863,133.55	2,031,599.37		SLPB SAND		941.52						
20280	863,138.69	2,031,599.56		SLPT SAND		943.11						
20281	863,145.35	2,031,599.95		SLPT1 SAND		943.34						
20282	863,152.41	2,031,599.96		SLPB1 SAND		941.62						
20283	863,155.58	2,031,700.01		SLPB1 SAND		941.30						
20284	863,146.34	2,031,699.58		SLPT1 SAND		943.57						
20285	863,137.81	2,031,699.71		SLPT SAND		943.51						
20286	863,130.68	2,031,699.70		SLPB SAND		941.61						
20287	863,148.51	2,031,749.66		SLPT1 SAND		943.30						
20288	863,157.69	2,031,761.97		SLPT1 SAND		943.30						

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
20289	863,157.13	2,031,747.32		SLPB1 SAND		940.76						
20290	863,164.06	2,031,753.92		SLPB1 SAND		940.48						
20291	863,240.91	2,031,754.41		SLPB1 SAND		940.18						
20292	863,241.00	2,031,762.70		SLPT1 SAND		943.32						
20293	863,242.17	2,031,777.43		BL SLPB1 SAND		943.49						
20294	863,147.92	2,031,775.25		SLPB1 SAND		943.26						
20295	863,137.81	2,031,753.27		BL SLPT SAND		943.51						
20296	863,131.59	2,031,764.14		SLPT SAND		943.54						
20297	863,128.07	2,031,753.94		BL SLPB SAND		940.75						
20298	863,135.38	2,031,776.65		BL SLPB1 SAND		943.64						
20299	863,050.79	2,031,778.52		SLPB1 SAND		943.66						
20300	863,049.89	2,031,765.31		SLPT SAND		943.57						
20301	863,030.10	2,031,766.77		SLPT SAND		944.84						
20302	863,029.69	2,031,781.49		SLPB1 SAND		944.76						
20303	863,042.88	2,031,754.17		SLPB SAND		940.46						
20304	862,942.74	2,031,751.99		SLPB SAND		940.56						
20305	862,942.69	2,031,765.76		SLPT SAND		945.19						
20306	862,942.56	2,031,783.19		SLPB1 SAND		945.35						
20307	862,841.59	2,031,782.66		SLPB1 SAND		945.37						
20308	862,826.76	2,031,760.48		SLPT SAND		945.19						
20309	862,820.12	2,031,745.73		SLPT SAND		943.69						
20310	862,829.91	2,031,746.55		SLPB SAND		941.01						
20311	862,742.02	2,031,784.22		SLPB1 SAND		945.47						
20312	862,662.76	2,031,782.44		EL SLPB1 SAND		945.64						
20313	862,665.52	2,031,766.45		BL SLPT1 SAND		945.08						
20314	862,675.73	2,031,748.10		BL SLPB1 SAND		941.35						
20315	862,744.87	2,031,748.78		SLPB1 SAND		940.59						
20316	862,742.48	2,031,764.08		SLPT1 SAND		945.40						
20317	862,808.53	2,031,762.48		SLPT1 SAND		945.22						
20318	862,811.38	2,031,745.21		SLPT1 SAND		943.66						
20319	862,801.56	2,031,744.48		SLPB1 SAND		940.99						
20320	862,805.26	2,031,700.62		SLPB1 SAND		941.51						
20321	862,814.12	2,031,700.64		SLPT1 SAND		944.47						
20322	862,820.05	2,031,701.38		SLPT SAND		944.33						
20323	862,828.62	2,031,701.15		SLPB SAND		941.50						
20324	862,828.78	2,031,599.92		SLPB SAND		943.55						
20325	862,821.80	2,031,599.93		SLPT SAND		946.33						
20326	862,815.80	2,031,600.31		SLPT1 SAND		946.41						
20327	862,806.96	2,031,600.60		SLPB1 SAND		943.33						
20328	862,808.80	2,031,500.22		SLPB1 SAND		945.61						
20329	862,814.73	2,031,500.22		SLPT1 SAND		947.86						

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
20330	862,822.02	2,031,500.67		SLPT SAND		948.07						
20331	862,830.12	2,031,500.70		SLPB SAND		945.50						
20332	862,829.66	2,031,400.24		SLPB SAND		947.47						
20333	862,819.13	2,031,400.86		SLPT SAND		950.33						
20334	862,812.10	2,031,401.86		SLPT1 SAND		950.15						
20335	862,804.65	2,031,402.02		SLPB1 SAND		947.22						
20336	862,804.77	2,031,301.84		SLPB1 SAND		949.08						
20337	862,811.10	2,031,301.40		SLPT1 SAND		951.89						
20338	862,818.30	2,031,301.54		SLPT SAND		951.96						
20339	862,825.57	2,031,301.65		SLPB SAND		949.35						
21000	863,468.55	2,031,300.04				949.40						
21001	863,476.65	2,031,299.70				952.41						
21002	863,484.87	2,031,299.71				952.41						
21003	863,493.85	2,031,300.32				949.41						
21004	863,490.88	2,031,372.88				947.99						
21005	863,482.16	2,031,370.83				950.92						
21006	863,472.59	2,031,368.13				950.75						
21007	863,465.17	2,031,365.92				948.13						
21008	863,458.78	2,031,405.44				947.29						
21009	863,465.97	2,031,405.85				950.11						
21010	863,475.40	2,031,407.66				950.00						
21011	863,482.96	2,031,408.70				947.10						
21012	863,481.92	2,031,501.37				945.44						
21013	863,473.30	2,031,501.12				948.39						
21014	863,464.86	2,031,500.91				948.44						
21015	863,457.31	2,031,500.56				945.48						
21016	863,453.49	2,031,601.60				943.44						
21017	863,461.86	2,031,602.27				946.37						
21018	863,469.70	2,031,602.67				946.36						
21019	863,478.16	2,031,602.80				943.36						
21020	863,473.18	2,031,700.36				941.33						
21021	863,463.44	2,031,699.95				944.49						
21022	863,455.88	2,031,699.67				944.59						
21023	863,447.07	2,031,699.57				941.60						
21024	863,446.20	2,031,754.06				940.79						
21025	863,453.50	2,031,756.60				943.41						
21026	863,448.43	2,031,762.64				943.30						
21027	863,360.45	2,031,764.60				943.30						
21028	863,360.28	2,031,753.82				940.64						
21029	863,307.79	2,031,753.64				940.56						
21030	863,306.75	2,031,763.45				943.19						

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
21031	863,305.40	2,031,778.39				943.31						
21032	863,361.17	2,031,779.62				943.48						
21033	863,451.23	2,031,778.44				943.48						
21034	863,469.62	2,031,777.73				943.37						
21035	863,461.55	2,031,753.20				943.51						
21036	863,470.23	2,031,762.57				943.45						
21037	863,472.45	2,031,750.86				940.57						
21038	863,486.98	2,031,755.63				940.54						
21039	863,540.87	2,031,753.84				940.47						
21040	863,541.41	2,031,763.89				943.38						
21041	863,541.29	2,031,777.79				943.24						
21042	863,614.72	2,031,776.21				943.44						
21043	863,614.36	2,031,763.92				943.28						
21044	863,604.56	2,031,752.96				941.10						
30000	862,389.41	2,030,549.91		BL SLPT SAND		1,012.46						
30001	862,390.19	2,030,614.52		SLPT SAND		1,011.95						
30002	862,377.58	2,030,699.12		SLPT SAND		1,005.84						
30003	862,357.16	2,030,799.57		SLPT SAND		997.23						
30004	862,336.89	2,030,899.63		SLPT SAND		988.85						
30005	862,331.59	2,030,938.77		SLPT SAND		986.11						
30006	862,334.57	2,030,999.16		SLPT SAND		986.09						
30007	862,338.43	2,031,098.75		SLPT SAND		986.06						
30008	862,344.10	2,031,201.04		SLPT SAND		986.29						
30009	862,349.73	2,031,302.08		SLPT SAND		986.22						
30010	862,354.51	2,031,399.93		SLPT SAND		986.22						
30011	862,359.70	2,031,499.79		SLPT SAND		986.26						
30012	862,365.75	2,031,599.78		SLPT SAND		986.04				986.59	0.54	
30013	862,370.94	2,031,701.31		SLPT SAND		986.09				986.60	0.51	
30014	862,376.17	2,031,800.69		SLPT SAND		986.03				986.68	0.65	
30015	862,381.42	2,031,900.66		SLPT SAND		986.14				986.75	0.61	
30016	862,383.39	2,032,000.35		BC SLPT SAND		985.18				985.79	0.61	
30017	862,394.35	2,032,040.78		SLPT SAND		984.77				985.33	0.56	
30018	862,422.55	2,032,066.20		SLPT SAND		984.80				985.32	0.52	
30019	862,457.54	2,032,074.55		EC SLPT SAND		985.31				985.74	0.44	
30020	862,541.66	2,032,072.87		SLPT SAND		985.95				986.57	0.62	
30021	862,643.23	2,032,072.62		SLPT SAND		986.09				986.63	0.55	
30022	862,742.12	2,032,072.58		SLPT SAND		986.15				986.66	0.51	
30023	862,841.88	2,032,072.42		SLPT SAND		986.18				986.69	0.51	
30024	862,942.28	2,032,072.55		SLPT SAND		985.90				986.47	0.57	
30025	863,042.04	2,032,073.08		SLPT SAND		986.01				986.61	0.60	
30026	863,142.01	2,032,072.16		SLPT SAND		986.19				986.75	0.56	

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
30027	863,241.89	2,032,072.59		SLPT SAND		986.11				986.64	0.54	
30028	863,342.28	2,032,072.44		SLPT SAND		986.05				986.63	0.59	
30029	863,421.88	2,032,069.84		EL SLPT SAND		986.41						
30030	862,325.08	2,031,651.73		GRND FIN		972.17						
30031	862,324.82	2,031,701.69		GRND FIN		971.15						
30032	862,327.98	2,031,801.35		GRND RANDOM		970.54				971.10	0.56	
30033	862,334.39	2,031,901.38		GRND RANDOM		970.46				971.21	0.75	
30034	862,336.90	2,032,010.61		GRND RANDOM		969.48				970.19	0.71	
30035	862,358.73	2,032,073.04		GRND RANDOM		968.54				969.10	0.56	
30036	862,402.98	2,032,107.11		GRND RANDOM		969.75				970.33	0.58	
30037	862,455.47	2,032,115.89		GRND RANDOM		971.65				972.21	0.56	
30038	862,541.62	2,032,119.27		GRND RANDOM		970.42				970.96	0.54	
30039	862,642.97	2,032,118.52		GRND RANDOM		970.61				971.33	0.72	
30040	862,741.48	2,032,118.78		GRND RANDOM		970.50				971.13	0.62	
30041	862,841.45	2,032,119.11		GRND RANDOM		970.48				971.18	0.70	
30042	862,941.55	2,032,118.29		GRND RANDOM		970.68				971.30	0.62	
30043	863,042.94	2,032,120.00		GRND RANDOM		970.11				970.81	0.70	
30044	863,142.51	2,032,118.36		GRND RANDOM		970.69				971.32	0.63	
30045	862,273.94	2,031,649.95		BL SLPB RANDOM		955.90				956.44	0.54	
30046	862,279.33	2,031,701.68		SLPB RANDOM		956.72				957.26	0.54	
30047	862,286.51	2,031,801.25		SLPB RANDOM		956.68						
30048	862,282.81	2,031,902.23		SLPB RANDOM		955.07				956.16	1.09	
30049	862,293.36	2,032,011.33		BC SLPB RANDOM		955.48				956.08	0.60	
30050	862,332.58	2,032,096.29		SLPB RANDOM		957.18				957.75	0.57	
30051	862,385.33	2,032,142.19		SLPB RANDOM		957.16						
30052	862,450.96	2,032,159.54		EC SLPB RANDOM		957.26						
30053	862,542.16	2,032,159.31		SLPB RANDOM		957.49				958.15	0.66	
30054	862,642.06	2,032,158.45		SLPB RANDOM		957.65				958.62	0.97	
30055	862,742.52	2,032,156.32		SLPB RANDOM		958.34				959.39	1.05	
30056	862,842.85	2,032,156.03		SLPB RANDOM		958.17				959.21	1.03	
30057	862,941.78	2,032,155.01		SLPB RANDOM		958.76				959.73	0.97	
30058	863,042.35	2,032,154.70		SLPB RANDOM		958.94				960.30	1.36	
30059	863,096.75	2,032,153.22		SLPB RANDOM		959.58				961.14	1.56	
30060	863,098.17	2,032,161.85		BL SLPT RANDOM		960.82						
30061	863,142.66	2,032,148.13		SLPT RANDOM		965.17						
30062	863,142.22	2,032,140.99		SLPB RANDOM		963.24				964.25	1.01	
30063	863,242.09	2,032,116.64		SLPB RANDOM		971.39				972.02	0.63	
30064	863,241.70	2,032,124.20		SLPT RANDOM		973.22						
30065	863,342.39	2,032,099.23		SLPT RANDOM		981.58						
30066	863,343.61	2,032,091.81		SLPB RANDOM		979.87				980.38	0.50	
30067	863,425.75	2,032,070.30		SLPB RANDOM		986.03				986.57	0.54	

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
30068	863,428.47	2,032,079.35		EL SLPT RANDOM		988.64						
30069	863,482.21	2,032,039.90		SLPB RANDOM		986.90						
30070	863,541.50	2,032,027.40		SLPB RANDOM		991.77						
30071	863,607.33	2,032,021.80		EL SLPB RANDOM		998.48						
60000	863,763.65	2,031,734.00	996.51	BL SLPT RANDOM	996.51							
60001	863,763.79	2,031,697.95	996.41	SLPT RANDOM	996.41							
60002	863,763.50	2,031,599.38	996.25	SLPT RANDOM	996.25							
60003	863,763.64	2,031,500.14	996.33	SLPT RANDOM	996.33							
60004	863,763.03	2,031,400.55	996.37	SLPT RANDOM	996.37							
60005	863,763.60	2,031,300.16	996.35	SLPT RANDOM	996.35							
60006	863,763.35	2,031,199.32	996.44	SLPT RANDOM	996.44							
60007	863,763.72	2,031,098.55	996.47	SLPT RANDOM	996.47							
60008	863,762.45	2,030,999.36	996.40	SLPT RANDOM	996.40							
60009	863,763.52	2,030,899.75	996.56	SLPT RANDOM	996.56							
60010	863,764.13	2,030,799.10	996.54	SLPT RANDOM	996.54							
60011	863,666.22	2,030,626.84	1,011.54	BL SLPT RANDOM	1,011.54							
60012	863,642.23	2,030,628.38	1,011.51	SLPT RANDOM	1,011.51							
60013	863,541.82	2,030,627.72	1,011.66	SLPT RANDOM	1,011.66							
60014	863,441.93	2,030,627.42	1,011.51	SLPT RANDOM	1,011.51							
60015	863,341.58	2,030,627.66	1,011.51	SLPT RANDOM	1,011.51							
60016	863,242.14	2,030,628.00	1,011.58	SLPT RANDOM	1,011.58							
60017	863,172.27	2,030,627.91	1,011.62	SLPT RANDOM	1,011.62							
60018	863,163.78	2,030,638.10	1,011.49	SLPT RANDOM	1,011.49							
60019	863,141.79	2,030,638.88	1,011.81	SLPT RANDOM	1,011.81							
60020	863,117.43	2,030,637.13	1,011.64	SLPT RANDOM	1,011.64							
60021	863,110.80	2,030,628.85	1,011.56	SLPT RANDOM	1,011.56							
60022	863,041.71	2,030,628.04	1,011.49	SLPT RANDOM	1,011.49							
60023	862,942.58	2,030,627.09	1,011.54	SLPT RANDOM	1,011.54							
60024	862,842.17	2,030,627.41	1,011.79	SLPT RANDOM	1,011.79							
60025	862,742.04	2,030,626.82	1,011.59	SLPT RANDOM	1,011.59							
60026	862,642.17	2,030,627.58	1,011.66	SLPT RANDOM	1,011.66							
60027	862,542.10	2,030,626.31	1,011.73	SLPT RANDOM	1,011.73							
60028	862,427.40	2,030,626.07	1,011.62	SLPT RANDOM	1,011.62							
60029	863,107.70	2,030,697.42	988.19	SLPB RANDOM	988.19							
60030	863,117.01	2,030,696.81	990.91	SLPB RANDOM	990.91							
60031	863,165.81	2,030,697.43	991.02	SLPB RANDOM	991.02							
60032	863,174.90	2,030,697.16	988.46	SLPB RANDOM	988.46							
60033	863,173.12	2,030,798.74	955.53	SLPB1 RANDOM	955.53							
60034	863,166.18	2,030,798.79	957.77	SLPT1 RANDOM	957.77							
60035	863,117.31	2,030,797.46	958.10	SLPT RANDOM	958.10							
60036	863,106.38	2,030,795.40	956.00	SLPB RANDOM	956.00							

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
60037	863,108.97	2,030,824.23	947.63	EL SLPB RANDOM	947.63							
60038	863,119.14	2,030,831.15	947.47	EL SLPT RANDOM	947.47							
60039	863,165.12	2,030,831.18	947.44	EL SLPT1 RANDOM	947.44							
60040	863,174.69	2,030,823.88	947.83	EL SLPB1 RANDOM	947.83							
100000	863,761.19	2,031,742.58		BL SLPT								996.56
100001	863,762.76	2,031,697.38		SLPT								996.60
100002	863,763.30	2,031,597.36		SLPT								996.84
100003	863,762.66	2,031,496.44		SLPT								996.79
100004	863,762.58	2,031,400.01		SLPT								996.79
100005	863,763.19	2,031,300.07		SLPT								996.63
100006	863,762.89	2,031,199.85		SLPT								996.70
100007	863,762.72	2,031,098.93		SLPT								996.79
100008	863,762.60	2,030,999.39		SLPT								996.76
100009	863,762.42	2,030,899.76		SLPT								996.70
100010	863,762.41	2,030,824.10		SLPT								996.73
100011	863,765.81	2,030,792.28		SLPT								997.55
100012	863,772.40	2,030,715.97		SLPT								1,004.40
100013	863,774.19	2,030,627.61		SLPT								1,011.72
100014	863,715.79	2,030,626.42		SLPT								1,012.35
100015	863,665.42	2,030,628.18		SLPT								1,011.80
100016	863,649.54	2,030,625.62		CULV END CO								1,012.06
100017	863,642.18	2,030,628.37		SLPT								1,012.17
100018	863,558.88	2,030,627.66		SLPT								1,012.01
100019	863,485.86	2,030,626.40		CULV END CO								1,011.75
100020	863,541.96	2,030,627.78		SLPT								1,012.03
100021	863,441.64	2,030,627.28		SLPT								1,012.17
100022	863,341.45	2,030,628.13		SLPT								1,012.08
100023	863,241.67	2,030,627.85		SLPT								1,012.07
100024	863,174.69	2,030,630.36		SLPT								1,012.09
100025	863,166.21	2,030,636.46		SLPT#SLPT1								1,011.91
100026	863,141.01	2,030,635.44		SLPT								1,012.19
100027	863,118.48	2,030,637.74		SLPT#SLPT2								1,012.13
100028	863,109.88	2,030,629.01		SLPT								1,011.96
100029	863,109.06	2,030,633.53		BL SLPB2								1,010.78
100030	863,174.28	2,030,633.83		BL SLPB1								1,010.95
100031	863,138.45	2,030,629.28		CULV END CO								1,012.00
100032	863,128.97	2,030,629.30		CULV END 30IN CO								1,011.71
100033	863,041.79	2,030,627.91		SLPT								1,012.01
100034	862,942.41	2,030,627.60		SLPT								1,011.98
100035	862,842.04	2,030,628.89		SLPT								1,012.03
100036	862,821.22	2,030,628.19		CULV END CO								1,011.86

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100037	862,742.10	2,030,626.72		SLPT								1,012.03
100038	862,642.56	2,030,627.87		SLPT								1,012.22
100039	862,609.46	2,030,627.58		CULV END CO								1,011.67
100040	862,542.45	2,030,627.35		SLPT								1,012.14
100041	862,429.20	2,030,628.03		SLPT								1,011.92
100042	862,433.71	2,030,632.86		BL GRBR								1,010.86
100043	862,426.94	2,030,654.02		SLPT								1,011.19
100044	862,422.63	2,030,700.55		SLPT								1,007.07
100045	862,413.30	2,030,799.74		SLPT								999.30
100046	862,406.47	2,030,898.72		SLPT								991.19
100047	862,403.89	2,030,935.61		SLPT								988.37
100048	863,105.62	2,030,697.36		SLPB2								988.96
100049	863,117.17	2,030,696.47		SLPT2								991.83
100050	863,168.43	2,030,697.25		SLPT1								991.58
100051	863,176.65	2,030,697.30		SLPB1								989.25
100052	863,768.31	2,030,637.13		BL GRBR1								1,010.27
100053	863,718.73	2,030,699.18		GRBR1								988.54
100054	863,686.60	2,030,741.53		GRBR1								974.91
100055	863,670.90	2,030,761.38		GRBR1								969.17
100056	863,602.48	2,030,869.19		BL RPRP								944.34
100057	863,608.68	2,030,851.71		RPRP								947.95
100058	863,616.34	2,030,832.17		RPRP								951.08
100059	863,652.59	2,030,795.83		RPRP								962.68
100060	863,674.14	2,030,769.80		RPRP								969.15
100061	863,668.66	2,030,763.50		RPRP								968.45
100062	863,664.07	2,030,760.25		RPRP								969.20
100063	863,628.54	2,030,796.15		RPRP								958.13
100064	863,599.29	2,030,825.34		RPRP								950.22
100065	863,579.67	2,030,829.99		RPRP								950.01
100066	863,578.56	2,030,835.52		RPRP								949.49
100067	863,572.80	2,030,845.85		RPRP								943.80
100068	863,574.89	2,030,869.95		CL RPRP								943.94
100069	863,573.71	2,030,835.81		BL GRBR1								947.52
100070	863,573.72	2,030,823.86		GRBR1								948.20
100071	863,579.26	2,030,819.70		GRBR1								949.29
100072	863,588.26	2,030,818.49		GRBR1								949.74
100073	863,616.72	2,030,788.76		GRBR1								958.51
100074	863,647.76	2,030,759.30		GRBR1								968.51
100075	863,678.17	2,030,780.68		BL GRBR1								969.42
100076	863,650.07	2,030,816.81		GRBR1								959.57
100077	863,621.68	2,030,840.69		GRBR1								951.11

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100078	863,613.09	2,030,873.67		GRBR1								947.32
100079	863,603.92	2,030,874.28		GRBR1								944.12
100080	863,599.54	2,030,958.22		BL SLPB								943.15
100081	863,601.59	2,030,999.35		SLPB								943.92
100082	863,607.88	2,031,099.71		SLPB								945.89
100083	863,614.19	2,031,199.22		SLPB								947.67
100084	863,617.35	2,031,298.71		SLPB								949.64
100085	863,612.96	2,031,399.37		SLPB								947.43
100086	863,607.03	2,031,499.34		SLPB								945.73
100087	863,602.15	2,031,599.45		SLPB								943.74
100088	863,601.14	2,031,669.22		SLPB								942.70
100089	863,671.40	2,031,742.95		EDGE TOPSOIL								966.13
100090	863,669.64	2,031,699.20		EDGE TOPSOIL								965.58
100091	863,669.65	2,031,599.31		EDGE TOPSOIL								965.80
100092	863,668.87	2,031,498.47		EDGE TOPSOIL								965.29
100093	863,669.73	2,031,399.72		EDGE TOPSOIL								965.50
100094	863,670.50	2,031,299.14		EDGE TOPSOIL								965.67
100095	863,670.39	2,031,199.51		EDGE TOPSOIL								965.65
100096	863,670.73	2,031,099.01		EDGE TOPSOIL								965.56
100097	863,670.04	2,030,999.39		EDGE TOPSOIL								965.63
100098	863,670.67	2,030,899.76		EDGE TOPSOIL								966.05
100099	863,675.96	2,030,804.70		EDGE TOPSOIL								967.86
100100	863,624.87	2,030,767.64		EDGE TOPSOIL								965.00
100101	863,541.53	2,030,767.33		EDGE TOPSOIL								965.56
100102	863,442.64	2,030,766.62		EDGE TOPSOIL								965.69
100103	863,341.85	2,030,766.04		EDGE TOPSOIL								965.82
100104	863,242.26	2,030,767.16		EDGE TOPSOIL								965.46
100105	863,175.28	2,030,767.17		TOPSOIL SLPB1								965.62
100106	863,167.19	2,030,771.51		TOPSOIL SLPB1								966.86
100107	863,117.54	2,030,772.03		TOPSOIL SLPB1								966.59
100108	863,107.16	2,030,768.67		TOPSOIL SLPB1								965.11
100109	863,041.92	2,030,768.67		TOPSOIL SLPB1								965.09
100110	862,942.37	2,030,766.22		TOPSOIL SLPB1								965.81
100111	862,841.56	2,030,766.95		TOPSOIL SLPB1								965.42
100112	862,742.24	2,030,767.61		TOPSOIL SLPB1								965.30
100113	862,642.56	2,030,766.83		TOPSOIL SLPB1								965.51
100114	862,563.05	2,030,763.15		TOPSOIL SLPB1								966.95
100115	862,447.25	2,030,648.53		GRBR								1,005.87
100116	862,480.48	2,030,696.18		GRBR								989.50
100117	862,525.61	2,030,761.47		GRBR								968.73
100118	862,612.70	2,030,823.41		BL SLPB								947.53

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100119	862,615.71	2,030,841.11		BL SLPT								946.56
100120	862,642.82	2,030,839.79		SLPT								947.28
100121	862,641.93	2,030,822.53		SLPB								947.39
100122	862,741.76	2,030,823.39		SLPB								947.50
100123	862,741.49	2,030,839.32		SLPT								947.49
100124	862,845.72	2,030,838.66		SLPT								947.26
100125	862,845.68	2,030,822.20		SLPB								947.66
100126	862,943.61	2,030,822.59		SLPB								947.40
100127	862,944.06	2,030,838.71		SLPT								947.31
100128	863,044.14	2,030,840.81		SLPT								947.51
100129	863,044.48	2,030,822.48		SLPB								947.43
100130	863,108.50	2,030,823.76		SLPB								947.77
100131	863,121.03	2,030,832.57		SLPB								947.14
100132	863,120.58	2,030,838.49		SLPT								946.67
100133	863,171.82	2,030,838.21		SLPT								947.34
100134	863,169.97	2,030,830.86		SLPB								947.52
100135	863,178.78	2,030,823.53		SLPB								947.42
100136	863,239.30	2,030,823.32		SLPB								947.36
100137	863,239.59	2,030,836.28		SLPT								947.23
100138	863,343.64	2,030,836.36		SLPT								947.33
100139	863,343.02	2,030,822.77		SLPB								947.50
100140	863,441.98	2,030,822.81		SLPB								947.48
100141	863,441.92	2,030,836.02		SLPT								947.21
100142	863,546.44	2,030,836.27		SLPT								947.30
100143	863,546.52	2,030,822.79		SLPB								947.39
100144	863,570.46	2,030,823.84		SLPB								947.73
100145	863,571.37	2,030,836.86		SLPT								947.41
100146	863,452.46	2,031,733.86		BL SLPT								945.93
100147	863,463.31	2,031,733.73		BL SLPT1								945.69
100148	863,464.31	2,031,699.09		SLPT1								946.59
100149	863,472.54	2,031,699.44		BL SLPB1								942.06
100150	863,444.89	2,031,698.86		BL SLPB								942.86
100151	863,454.13	2,031,699.29		SLPT								946.73
100152	863,456.74	2,031,645.34		SLPT								947.69
100153	863,447.01	2,031,644.75		SLPB								943.20
100154	863,466.79	2,031,646.38		SLPT1								947.60
100155	863,477.25	2,031,648.09		SLPB1								942.47
100156	863,481.64	2,031,597.30		SLPB1								943.56
100157	863,470.04	2,031,596.90		SLPT1								948.52
100158	863,460.69	2,031,597.08		SLPT								948.55
100159	863,449.43	2,031,596.95		SLPB								943.57

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100160	863,451.64	2,031,497.82		SLPB								945.72
100161	863,463.37	2,031,497.97		SLPT								950.50
100162	863,473.34	2,031,498.55		SLPT1								950.47
100163	863,484.29	2,031,497.98		SLPB1								945.38
100164	863,484.16	2,031,414.00		SLPB1								947.13
100165	863,473.56	2,031,413.57		SLPT1								952.15
100166	863,464.48	2,031,412.98		SLPT								952.06
100167	863,453.70	2,031,413.41		SLPB								947.11
100168	863,560.78	2,030,852.26		BL SLPB3								942.07
100169	863,539.50	2,030,852.93		SLPB3								941.83
100170	863,502.94	2,030,852.33		SLPB3								941.98
100171	863,457.81	2,030,849.43		BL SLPB3								942.20
100172	863,395.15	2,030,848.35		SLPB3								941.85
100173	863,287.83	2,030,846.99		SLPB3								941.27
100174	863,197.57	2,030,850.74		SLPB3								942.79
100175	863,156.12	2,030,851.62		SLPB3								942.73
100176	863,157.70	2,030,852.03		SLPB3								944.46
100177	863,154.89	2,030,849.25		SLPB3								945.82
100178	863,120.61	2,030,849.23		BL SLPB3								941.86
100179	863,038.57	2,030,850.92		SLPB3								941.91
100180	862,940.64	2,030,848.79		SLPB3								941.91
100181	862,833.49	2,030,849.24		SLPB3								941.42
100182	862,792.35	2,030,849.80		BL SLPB3								941.90
100183	862,717.44	2,030,850.00		SLPB3								941.42
100184	862,715.72	2,030,849.82		SLPB3								944.70
100185	862,632.44	2,030,852.35		SLPB3								941.84
100186	863,494.27	2,031,361.08		SLPB1								948.40
100187	863,482.91	2,031,360.57		SLPT1								953.39
100188	863,472.03	2,031,358.04		SLPT								953.52
100189	863,461.94	2,031,356.44		SLPB								948.66
100190	863,463.09	2,031,300.22		SLPB								949.58
100191	863,475.05	2,031,299.77		SLPT								954.67
100192	863,485.72	2,031,299.55		SLPT1								954.57
100193	863,496.66	2,031,299.83		SLPB1								949.84
100194	863,498.43	2,031,198.78		SLPB1								947.78
100195	863,485.88	2,031,199.12		SLPT1								952.59
100196	863,475.89	2,031,199.75		SLPT								952.62
100197	863,464.14	2,031,199.29		SLPB								947.89
100198	863,462.88	2,031,098.11		SLPB								945.60
100199	863,474.88	2,031,097.76		SLPT								950.50
100200	863,483.94	2,031,097.79		SLPT1								950.57

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100201	863,495.86	2,031,096.95		SLPB1								945.76
100202	863,495.68	2,031,000.15		SLPB1								943.64
100203	863,483.12	2,031,000.48		SLPT1								948.65
100204	863,474.45	2,031,000.96		SLPT								948.76
100205	863,463.66	2,031,001.51		SLPB								943.88
100206	863,468.97	2,030,899.77		SLPB								943.10
100207	863,474.84	2,030,898.74		SLPT								946.79
100208	863,485.15	2,030,898.56		SLPT1								946.83
100209	863,494.50	2,030,898.45		SLPB1								942.85
100210	863,485.06	2,030,857.24		SLPT1								946.96
100211	863,472.61	2,030,858.91		SLPT								946.64
100212	863,144.03	2,030,849.14		BL SLPT								946.08
100213	863,130.12	2,030,847.46		BL SLPT1								946.21
100214	863,134.55	2,030,874.39		SLPT1								945.39
100215	863,130.58	2,030,874.60		BL SLPB1								942.88
100216	863,145.56	2,030,873.44		SLPT								945.49
100217	863,148.96	2,030,873.60		BL SLPB								943.30
100218	863,159.19	2,031,000.51		SLPB								943.02
100219	863,149.90	2,031,001.44		SLPT								945.43
100220	863,141.06	2,031,001.56		SLPT1								945.51
100221	863,134.11	2,031,001.68		SLPB1								942.51
100222	863,133.49	2,031,101.99		SLPB1								942.14
100223	863,141.72	2,031,101.91		SLPT1								945.49
100224	863,151.13	2,031,102.50		SLPT								945.33
100225	863,160.22	2,031,102.97		SLPB								942.52
100226	863,158.37	2,031,201.68		SLPB								942.65
100227	863,148.46	2,031,201.30		SLPT								945.53
100228	863,140.37	2,031,201.07		SLPT1								945.49
100229	863,131.62	2,031,201.14		SLPB1								942.24
100230	863,129.60	2,031,299.25		SLPB1								942.16
100231	863,138.12	2,031,299.56		SLPT1								944.85
100232	863,148.41	2,031,300.49		SLPT								945.24
100233	863,156.66	2,031,300.44		SLPB								942.69
100234	863,156.15	2,031,399.01		SLPB								942.41
100235	863,149.08	2,031,399.57		SLPT								945.17
100236	863,139.74	2,031,395.06		SLPT1								944.52
100237	863,137.37	2,031,395.26		SLPB1								942.46
100238	863,133.29	2,031,500.48		SLPB1								942.36
100239	863,141.06	2,031,499.79		SLPT1								945.33
100240	863,148.09	2,031,499.94		SLPT								945.32
100241	863,157.05	2,031,499.67		SLPB								942.56

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100242	863,156.64	2,031,601.20		SLPB								942.68
100243	863,147.84	2,031,600.28		SLPT								945.25
100244	863,139.56	2,031,600.62		SLPT1								945.37
100245	863,131.68	2,031,600.65		SLPB1								942.59
100246	863,128.68	2,031,700.57		SLPB1								942.69
100247	863,135.10	2,031,700.55		SLPT1								946.21
100248	863,147.66	2,031,699.90		SLPT								946.28
100249	863,153.35	2,031,699.80		SLPB								942.50
100250	863,156.72	2,031,741.12		SLPB								942.33
100251	863,149.26	2,031,743.93		SLPT								946.84
100252	863,131.91	2,031,742.59		SLPT1								946.74
100253	863,121.56	2,031,741.37		SLPB1								942.34
100254	862,831.10	2,031,687.21		BL SLPB								943.25
100255	862,820.05	2,031,686.77		BL SLPT								946.79
100256	862,810.38	2,031,687.10		BL SLPT1								946.83
100257	862,801.30	2,031,687.67		BL SLPB1								943.11
100258	862,795.73	2,031,596.98		SLPB1								943.40
100259	862,811.51	2,031,600.79		SLPT1								948.34
100260	862,821.09	2,031,600.56		SLPT								948.59
100261	862,836.90	2,031,600.19		SLPB								943.43
100262	862,837.97	2,031,497.87		SLPB								945.30
100263	862,820.27	2,031,499.71		SLPT								950.54
100264	862,810.41	2,031,499.59		SLPT1								950.51
100265	862,793.11	2,031,499.37		SLPB1								945.34
100266	862,793.30	2,031,402.48		SLPB1								947.29
100267	862,808.91	2,031,402.34		SLPT1								952.32
100268	862,819.99	2,031,402.59		SLPT								952.28
100269	862,835.97	2,031,401.65		SLPB								947.35
100270	862,832.89	2,031,298.98		SLPB								949.15
100271	862,818.05	2,031,299.24		SLPT								954.20
100272	862,809.05	2,031,299.18		SLPT1								954.06
100273	862,797.29	2,031,300.06		SLPB1								949.43
100274	862,793.74	2,031,204.94		SLPB1								947.60
100275	862,807.93	2,031,204.60		SLPT1								952.40
100276	862,818.86	2,031,205.06		SLPT								952.57
100277	862,833.66	2,031,205.09		SLPB								947.34
100278	862,834.93	2,031,096.89		SLPB								945.34
100279	862,818.04	2,031,097.70		SLPT								950.68
100280	862,808.81	2,031,098.13		SLPT1								950.54
100281	862,793.80	2,031,098.39		SLPB1								945.32
100282	862,794.50	2,030,994.49		SLPB1								943.35

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100283	862,808.50	2,030,994.36		SLPT1								948.43
100284	862,818.90	2,030,994.79		SLPT								948.25
100285	862,834.42	2,030,994.24		SLPB								943.32
100286	862,828.45	2,030,936.17		SLPB								943.32
100287	862,800.54	2,030,938.86		SLPB1								943.16
100288	862,799.42	2,030,896.99		SLPB1								942.49
100289	862,804.13	2,030,896.59		SLPT1								946.45
100290	862,820.63	2,030,896.83		SLPT								946.54
100291	862,825.31	2,030,896.42		SLPB								943.20
100292	862,816.80	2,030,857.63		SLPT								946.09
100293	862,808.53	2,030,859.37		SLPT1								946.33
100294	862,799.38	2,030,841.29		SLPT1								947.17
100295	862,823.30	2,030,841.73		SLPT								947.09
100296	863,742.11	2,031,699.70		GRND								990.09
100297	863,742.24	2,031,599.39		GRND								989.75
100298	863,742.47	2,031,499.68		GRND								989.95
100299	863,742.13	2,031,399.47		GRND								989.88
100300	863,742.32	2,031,299.56		GRND								989.72
100301	863,742.04	2,031,199.57		GRND								989.78
100302	863,742.39	2,031,099.58		GRND								989.82
100303	863,742.05	2,030,999.48		GRND								989.80
100304	863,742.11	2,030,899.97		GRND								989.86
100305	863,642.20	2,030,698.75		GRND								988.36
100306	862,542.24	2,030,699.51		GRND								988.16
100307	862,642.68	2,030,699.47		GRND								988.25
100308	862,741.74	2,030,699.48		GRND								988.23
100309	862,842.44	2,030,699.22		GRND								988.33
100310	862,942.27	2,030,699.25		GRND								988.23
100311	863,042.08	2,030,698.93		GRND								988.35
100312	863,141.71	2,030,699.13		GRND								991.01
100313	863,241.95	2,030,699.18		GRND								988.14
100314	863,342.02	2,030,699.26		GRND								988.15
100315	863,442.19	2,030,699.11		GRND								988.30
100316	863,541.77	2,030,698.90		GRND								988.08
100317	862,415.03	2,030,899.67		GRND								988.51
100318	862,478.93	2,030,694.99		GRND								990.02
100319	862,514.83	2,030,744.29		GRND								973.45
100320	862,464.95	2,030,764.70		GRND								986.52
100321	862,461.20	2,030,799.67		GRND								984.19
100322	862,441.63	2,030,900.04		GRND								979.85
100323	862,516.84	2,030,748.40		GRND								972.14

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100324	863,742.04	2,031,738.44		GRND								990.05
100325	863,742.03	2,030,803.92		GRND								990.07
100326	862,810.72	2,031,205.10		GRND								952.53
100327	862,817.61	2,031,205.33		GRND								952.66
100328	862,817.00	2,031,099.16		GRND								950.60
100329	862,810.54	2,031,098.24		GRND								950.60
100330	862,808.59	2,030,997.06		GRND								948.49
100331	862,816.49	2,030,996.92		GRND								948.60
100332	862,815.91	2,030,898.53		GRND								946.29
100333	862,808.76	2,030,898.55		GRND								946.35
100334	863,138.72	2,030,899.32		GRND								945.42
100335	863,146.03	2,030,898.72		GRND								945.44
100336	863,147.54	2,030,999.56		GRND								945.64
100337	863,143.28	2,030,997.78		GRND								945.52
100338	863,142.20	2,031,099.69		GRND								945.39
100339	863,148.98	2,031,101.39		GRND								945.67
100340	863,141.93	2,031,198.20		GRND								945.42
100341	863,148.45	2,031,197.47		GRND								945.50
100342	863,147.56	2,031,299.13		GRND								945.43
100343	863,141.65	2,031,299.16		GRND								945.25
100344	863,143.27	2,031,399.31		GRND								945.12
100345	863,148.49	2,031,398.52		GRND								945.33
100346	863,147.38	2,031,498.96		GRND								945.35
100347	863,142.62	2,031,498.34		GRND								945.27
100348	863,139.13	2,031,600.32		GRND								945.23
100349	863,145.45	2,031,600.41		GRND								945.42
100350	863,146.53	2,031,699.32		GRND								946.14
100351	863,138.17	2,031,699.53		GRND								946.09
100352	862,821.13	2,031,599.74		GRND								948.70
100353	862,816.06	2,031,599.74		GRND								948.59
100354	862,814.72	2,031,500.20		GRND								950.69
100355	862,819.96	2,031,500.80		GRND								950.65
100356	862,819.26	2,031,400.73		GRND								952.47
100357	862,811.63	2,031,401.72		GRND								952.42
100358	862,811.07	2,031,301.34		GRND								954.24
100359	862,817.57	2,031,301.84		GRND								954.29
100360	863,476.92	2,031,299.82		GRND								954.44
100361	863,484.75	2,031,299.68		GRND								954.50
100362	863,480.70	2,031,371.55		GRND								953.09
100363	863,472.65	2,031,368.33		GRND								953.18
100364	863,466.05	2,031,405.71		GRND								952.27

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100365	863,472.91	2,031,407.43		GRND								952.32
100366	863,472.95	2,031,500.92		GRND								950.53
100367	863,465.12	2,031,501.05		GRND								950.56
100368	863,461.84	2,031,602.22		GRND								948.50
100369	863,469.95	2,031,602.77		GRND								948.46
100370	863,463.43	2,031,699.99		GRND								946.51
100371	863,455.93	2,031,699.72		GRND								946.63
100372	863,483.44	2,030,899.72		GRND								946.94
100373	863,477.03	2,030,899.74		GRND								946.77
100374	863,476.54	2,030,999.69		GRND								948.59
100375	863,482.98	2,031,000.22		GRND								948.64
100376	863,481.90	2,031,099.31		GRND								950.63
100377	863,476.07	2,031,098.91		GRND								950.53
100378	863,476.11	2,031,199.00		GRND								952.62
100379	863,484.33	2,031,200.59		GRND								952.66
100400	863,141.11	2,030,821.27		GRND RANDOM								950.36
100401	863,763.65	2,031,734.00		BL SLPT RANDOM								996.51
100402	863,763.79	2,031,697.95		SLPT RANDOM								996.41
100403	863,763.50	2,031,599.38		SLPT RANDOM								996.25
100404	863,763.64	2,031,500.14		SLPT RANDOM								996.33
100405	863,763.03	2,031,400.55		SLPT RANDOM								996.37
100406	863,763.60	2,031,300.16		SLPT RANDOM								996.35
100407	863,763.35	2,031,199.32		SLPT RANDOM								996.44
100408	863,763.72	2,031,098.55		SLPT RANDOM								996.47
100409	863,762.45	2,030,999.36		SLPT RANDOM								996.40
100410	863,763.52	2,030,899.75		SLPT RANDOM								996.56
100411	863,764.13	2,030,799.10		SLPT RANDOM								996.54
100412	863,666.22	2,030,626.84		BL SLPT RANDOM								1,011.54
100413	863,642.23	2,030,628.38		SLPT RANDOM								1,011.51
100414	863,541.82	2,030,627.72		SLPT RANDOM								1,011.66
100415	863,441.93	2,030,627.42		SLPT RANDOM								1,011.51
100416	863,341.58	2,030,627.66		SLPT RANDOM								1,011.51
100417	863,242.14	2,030,628.00		SLPT RANDOM								1,011.58
100418	863,172.27	2,030,627.91		SLPT RANDOM								1,011.62
100419	863,163.78	2,030,638.10		SLPT RANDOM								1,011.49
100420	863,141.79	2,030,638.88		SLPT RANDOM								1,011.81
100421	863,117.43	2,030,637.13		SLPT RANDOM								1,011.64
100422	863,110.80	2,030,628.85		SLPT RANDOM								1,011.56
100423	863,041.71	2,030,628.04		SLPT RANDOM								1,011.49
100424	862,942.58	2,030,627.09		SLPT RANDOM								1,011.54
100425	862,842.17	2,030,627.41		SLPT RANDOM								1,011.79

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100426	862,742.04	2,030,626.82		SLPT RANDOM								1,011.59
100427	862,642.17	2,030,627.58		SLPT RANDOM								1,011.66
100428	862,542.10	2,030,626.31		SLPT RANDOM								1,011.73
100429	862,427.40	2,030,626.07		SLPT RANDOM								1,011.62
100430	863,107.70	2,030,697.42		BR 60021 SLPB RANDO								988.19
100431	863,117.01	2,030,696.81		BR 60020 SLPT RANDO								990.91
100432	863,165.81	2,030,697.43		BR 60018 SLPT1 RAND								991.02
100433	863,174.90	2,030,697.16		BR 60017 SLPB1 RAND								988.46
100434	863,173.12	2,030,798.74		SLPB1 RANDOM								955.53
100435	863,166.18	2,030,798.79		SLPT1 RANDOM								957.77
100436	863,117.31	2,030,797.46		SLPT RANDOM								958.10
100437	863,106.38	2,030,795.40		SLPB RANDOM								956.00
100438	863,108.97	2,030,824.23		EL SLPB RANDOM								947.63
100439	863,119.14	2,030,831.15		EL SLPT RANDOM								947.47
100440	863,165.12	2,030,831.18		EL SLPT1 RANDOM								947.44
100441	863,174.69	2,030,823.88		EL SLPB1 RANDOM								947.83
100442	863,742.45	2,031,699.51		GRND RANDOM								989.42
100443	863,742.03	2,031,599.40		GRND RANDOM								989.13
100444	863,742.07	2,031,499.52		GRND RANDOM								989.42
100445	863,742.14	2,031,399.39		GRND RANDOM								989.31
100446	863,742.53	2,031,299.34		GRND RANDOM								989.18
100447	863,741.72	2,031,199.53		GRND RANDOM								989.18
100448	863,742.32	2,031,099.51		GRND RANDOM								989.29
100449	863,742.19	2,030,999.73		GRND RANDOM								989.24
100450	863,741.98	2,030,899.70		GRND RANDOM								989.29
100451	863,642.02	2,030,699.03		GRND RANDOM								987.95
100452	863,642.18	2,030,899.39		GRND RANDOM								956.45
100453	863,642.09	2,030,999.29		GRND RANDOM								956.49
100454	863,642.14	2,031,099.30		GRND RANDOM								956.39
100455	863,642.22	2,031,199.66		GRND RANDOM								956.47
100456	863,642.21	2,031,299.38		GRND RANDOM								956.29
100457	863,642.06	2,031,399.60		GRND RANDOM								956.27
100458	863,642.50	2,031,499.22		GRND RANDOM								956.29
100459	863,641.81	2,031,599.24		GRND RANDOM								956.33
100460	863,642.19	2,031,699.00		GRND RANDOM								956.41
100461	862,541.96	2,030,699.30		GRND RANDOM								987.60
100462	862,642.28	2,030,699.30		GRND RANDOM								987.68
100463	862,642.20	2,030,798.98		GRND RANDOM								954.81
100464	862,742.26	2,030,799.43		GRND RANDOM								954.67
100465	862,741.95	2,030,699.38		GRND RANDOM								987.64
100466	862,842.35	2,030,699.27		GRND RANDOM								987.78

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100467	862,842.13	2,030,799.36		GRND RANDOM								954.59
100468	862,941.95	2,030,799.07		GRND RANDOM								954.78
100469	862,942.33	2,030,699.24		GRND RANDOM								987.70
100470	863,041.81	2,030,699.04		GRND RANDOM								987.80
100471	863,042.28	2,030,799.67		GRND RANDOM								954.90
100472	863,142.17	2,030,799.10		GRND RANDOM								957.58
100473	863,142.19	2,030,699.04		GRND RANDOM								990.46
100474	863,241.87	2,030,699.33		GRND RANDOM								987.53
100475	863,242.14	2,030,799.43		GRND RANDOM								954.79
100476	863,341.66	2,030,799.44		GRND RANDOM								954.72
100477	863,341.57	2,030,699.46		GRND RANDOM								987.61
100478	863,441.89	2,030,699.05		GRND RANDOM								987.83
100479	863,442.31	2,030,798.90		GRND RANDOM								954.80
100480	863,542.16	2,030,799.25		GRND RANDOM								955.03
100481	863,541.96	2,030,699.23		GRND RANDOM								987.54
100482	863,615.65	2,030,999.45		GRND RANDOM								947.97
100483	863,621.40	2,031,099.24		GRND RANDOM								949.94
100484	863,627.97	2,031,200.07		GRND RANDOM								951.97
100485	863,633.00	2,031,299.39		GRND RANDOM								953.76
100486	863,626.57	2,031,399.43		GRND RANDOM								951.79
100487	863,620.39	2,031,499.23		GRND RANDOM								949.76
100488	863,614.83	2,031,599.61		GRND RANDOM								947.72
100489	863,610.31	2,031,686.89		GRND RANDOM								945.90
100490	862,479.56	2,030,695.06		GRND RANDOM								989.43
100491	862,592.69	2,030,793.27		GRND RANDOM								957.07
100492	863,610.60	2,031,699.80		GRND RANDOM								945.98
100493	863,609.48	2,030,900.01		GRND RANDOM								945.90
100494	863,641.47	2,030,794.48		GRND RANDOM								956.85
100495	863,667.96	2,030,768.17		GRND RANDOM								966.09
100496	863,742.07	2,030,803.88		GRND RANDOM								989.44
100497	863,673.12	2,030,803.97		GRND RANDOM								966.53
100498	863,662.06	2,030,761.28		GRND RANDOM								967.73
100499	863,660.46	2,030,699.27		GRND RANDOM								987.73
100500	862,807.80	2,030,839.78		GRND RANDOM								947.42
100501	862,798.38	2,030,835.81		GRND RANDOM								947.49
100502	862,742.06	2,030,835.19		GRND RANDOM								947.41
100503	862,687.47	2,030,835.93		GRND RANDOM								947.52
100504	862,688.33	2,030,821.75		GRND RANDOM								947.42
100505	862,742.71	2,030,821.75		GRND RANDOM								947.74
100506	862,845.93	2,030,822.23		GRND RANDOM								947.51
100507	862,845.99	2,030,838.23		GRND RANDOM								947.19

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100508	862,815.75	2,030,854.87		GRND RANDOM								946.35
100509	862,821.46	2,030,836.00		GRND RANDOM								947.16
100510	862,942.10	2,030,836.40		GRND RANDOM								947.34
100511	862,942.11	2,030,821.54		GRND RANDOM								947.54
100512	863,042.91	2,030,821.87		GRND RANDOM								947.54
100513	863,043.09	2,030,835.74		GRND RANDOM								947.45
100514	863,116.54	2,030,836.69		GRND RANDOM								947.29
100515	863,130.72	2,030,850.19		GRND RANDOM								946.09
100516	863,240.80	2,030,823.92		GRND RANDOM								947.46
100517	863,239.99	2,030,836.00		GRND RANDOM								947.19
100518	863,149.39	2,030,836.23		GRND RANDOM								947.21
100519	863,143.35	2,030,845.28		GRND RANDOM								946.33
100520	862,620.94	2,030,839.30		GRND RANDOM								947.69
100521	862,622.61	2,030,822.79		GRND RANDOM								947.61
100522	863,642.15	2,030,799.62		GRND RANDOM								956.67
100523	863,612.75	2,030,822.48		GRND RANDOM								948.00
100524	863,612.08	2,030,835.21		GRND RANDOM								947.68
100525	863,541.34	2,030,834.80		GRND RANDOM								947.38
100526	863,542.09	2,030,822.15		GRND RANDOM								947.41
100527	863,480.99	2,030,822.61		GRND RANDOM								947.54
100528	863,441.47	2,030,822.73		GRND RANDOM								947.56
100529	863,342.62	2,030,822.38		GRND RANDOM								947.74
100530	863,342.28	2,030,836.43		GRND RANDOM								947.39
100531	863,441.11	2,030,835.34		GRND RANDOM								947.29
100532	863,476.55	2,030,836.83		GRND RANDOM								947.47
100533	863,489.46	2,030,837.37		GRND RANDOM								947.56
100534	863,476.00	2,030,850.39		GRND RANDOM								947.08
100535	863,483.79	2,030,851.22		GRND RANDOM								947.08
100600	863,611.14	2,031,759.20		BL SLPT								947.12
100601	863,610.36	2,031,776.16		BL SLPB								947.31
100602	863,543.53	2,031,777.98		SLPB								947.50
100603	863,543.35	2,031,762.28		SLPT								947.26
100604	863,476.36	2,031,759.55		SLPT								947.05
100605	863,464.21	2,031,749.52		SLPT								946.55
100606	863,460.73	2,031,735.92		SLPT								945.93
100607	863,452.54	2,031,735.25		BL SLPT								945.93
100608	863,452.36	2,031,749.97		SLPT								945.94
100609	863,447.16	2,031,758.48		SLPT								947.28
100610	863,455.52	2,031,777.09		SLPB								947.26
100611	863,342.33	2,031,777.37		SLPB								947.37
100612	863,342.04	2,031,759.81		SLPT								947.48

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100613	863,241.03	2,031,758.45		SLPT								947.44
100614	863,240.68	2,031,777.71		SLPB								947.51
100615	863,177.14	2,031,775.51		SLPB#BL SLPB1								947.50
100616	863,166.34	2,031,768.67		SLPB#BL SLPT1								947.52
100617	863,166.35	2,031,800.58		SLPT1								957.86
100618	863,173.31	2,031,801.11		SLPB1								955.51
100619	863,174.31	2,031,831.24		SLPB1								965.70
100620	863,166.35	2,031,831.37		SLPT1								968.10
100621	863,117.85	2,031,830.86		BL SLPT1								967.97
100622	863,108.86	2,031,830.95		BL SLPB1								965.36
100623	863,108.01	2,031,797.33		SLPB1								953.82
100624	863,117.28	2,031,797.77		SLPT1								956.90
100625	863,116.79	2,031,768.73		SLPT1#SLPB								947.23
100626	863,108.57	2,031,775.83		SLPB1#SLPB								947.32
100627	863,169.17	2,031,756.26		SLPT								947.06
100628	863,151.40	2,031,746.97		SLPT								946.83
100629	863,147.59	2,031,729.02		SLPT								946.58
100630	863,134.68	2,031,729.55		BL SLPT								946.29
100631	863,126.63	2,031,748.06		SLPT								946.55
100632	863,109.45	2,031,756.64		SLPT								947.05
100633	863,051.10	2,031,760.38		SLPT								947.49
100634	863,050.18	2,031,778.69		SLPB								947.68
100635	863,021.69	2,031,783.87		SLPB								949.60
100636	863,021.40	2,031,760.12		SLPT								949.05
100637	862,941.75	2,031,760.45		SLPT								949.36
100638	862,939.90	2,031,782.93		SLPB								949.42
100639	862,840.29	2,031,783.23		SLPB								949.29
100640	862,834.58	2,031,759.55		SLPT								949.19
100641	862,826.07	2,031,748.58		SLPT								947.44
100642	862,821.69	2,031,726.35		SLPT								946.53
100643	862,809.71	2,031,726.34		BL SLPT								946.71
100644	862,808.38	2,031,743.82		SLPT								947.13
100645	862,801.09	2,031,761.14		SLPT								949.26
100646	862,742.42	2,031,763.29		SLPT								949.00
100647	862,742.05	2,031,782.62		SLPB								949.32
100648	862,667.03	2,031,780.65		SLPB								949.49
100649	862,666.35	2,031,762.55		SLPT								948.87
100650	862,672.62	2,031,753.72		GRND								946.17
100651	862,669.87	2,031,691.36		GRND								946.01
100652	862,665.63	2,031,600.48		GRND								945.90
100653	862,663.16	2,031,525.26		BL SLPB								945.31

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100654	862,661.21	2,031,498.76		SLPB								945.96
100655	862,650.51	2,031,399.71		SLPB								947.84
100656	862,640.45	2,031,298.41		SLPB								949.35
100657	862,640.02	2,031,201.07		SLPB								947.94
100658	862,638.23	2,031,102.58		SLPB								946.23
100659	862,625.87	2,030,994.14		GRND								948.31
100660	862,621.92	2,030,902.35		GRND								948.37
100661	862,622.76	2,030,844.84		GRND								947.35
100662	862,639.26	2,030,856.43		BL SLPB								942.04
100663	862,642.90	2,030,896.82		SLPB								942.29
100664	862,645.98	2,030,973.35		SLPB								942.80
100665	862,638.64	2,031,058.96		SLPB								945.29
100666	862,669.81	2,030,851.01		BL SLPB								940.81
100667	862,730.04	2,030,854.74		SLPB								940.79
100668	862,785.81	2,030,851.01		SLPB								940.87
100669	862,792.81	2,030,907.25		SLPB								941.66
100670	862,795.17	2,030,965.10		SLPB								942.80
100671	862,790.75	2,031,577.20		BL SLPB								943.81
100672	862,799.60	2,031,676.26		SLPB								943.22
100673	862,792.23	2,031,739.04		SLPB								940.98
100674	862,745.57	2,031,745.10		SLPB								941.55
100675	862,713.72	2,031,747.24		SLPB								941.63
100676	862,686.88	2,031,744.62		SLPB								942.15
100677	862,679.13	2,031,690.79		SLPB								942.71
100678	862,674.04	2,031,602.16		SLPB								943.72
100679	862,837.34	2,031,593.33		BL SLPB								943.48
100680	862,833.84	2,031,680.04		SLPB								942.90
100681	862,837.14	2,031,739.91		SLPB								941.10
100682	862,904.02	2,031,741.13		SLPB								940.98
100683	862,972.70	2,031,742.19		SLPB								940.95
100684	863,043.54	2,031,741.89		SLPB								940.69
100685	863,110.77	2,031,742.65		SLPB								940.88
100686	863,120.66	2,031,718.44		SLPB								941.24
100687	863,125.23	2,031,629.84		SLPB								942.21
100688	863,124.65	2,031,559.15		SLPB								942.13
100689	863,160.51	2,031,569.65		BL SLPB								942.25
100690	863,157.72	2,031,663.06		SLPB								942.39
100691	863,160.45	2,031,733.03		SLPB								940.84
100692	863,172.78	2,031,741.88		SLPB								941.03
100693	863,243.14	2,031,744.14		SLPB								940.70
100694	863,356.19	2,031,745.32		SLPB								940.87

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100695	863,438.95	2,031,746.45		SLPB								941.00
100696	863,440.94	2,031,700.02		SLPB								941.64
100697	863,447.40	2,031,627.25		SLPB								942.89
100698	863,450.58	2,031,552.18		SLPB								944.32
100699	863,480.09	2,031,643.75		BL SLPB								942.48
100700	863,474.77	2,031,695.21		SLPB								941.89
100701	863,474.65	2,031,740.69		SLPB								940.49
100702	863,508.04	2,031,745.74		SLPB								940.54
100703	863,562.86	2,031,743.84		SLPB								940.86
100704	863,594.96	2,031,740.27		SLPB								941.35
100705	863,594.32	2,031,684.04		SLPB								941.97
100706	863,597.23	2,031,613.54		SLPB								943.35
100707	863,159.13	2,031,465.16		BL SLPB								942.17
100708	863,160.88	2,031,341.20		SLPB								942.35
100709	863,161.91	2,031,218.12		SLPB								942.87
100710	863,162.29	2,031,103.93		SLPB								942.99
100711	863,160.78	2,031,018.69		SLPB								942.50
100712	863,160.22	2,030,945.32		SLPB								942.47
100713	863,158.04	2,030,883.30		SLPB								941.09
100714	863,162.56	2,030,855.72		SLPB								940.69
100715	863,236.64	2,030,851.82		SLPB								941.58
100716	863,355.21	2,030,851.30		SLPB								941.81
100717	863,446.21	2,030,850.65		SLPB								942.04
100718	863,464.99	2,030,885.80		SLPB								941.04
100719	863,459.74	2,030,954.53		SLPB								942.51
100720	863,460.67	2,031,003.52		SLPB								943.32
100721	863,598.68	2,030,954.58		BL SLPB								943.00
100722	863,586.18	2,030,900.84		SLPB								941.85
100723	863,553.77	2,030,896.89		SLPB								941.58
100724	863,532.82	2,030,862.14		SLPB								941.22
100725	863,501.11	2,030,856.08		SLPB								941.05
100726	863,502.88	2,030,929.78		SLPB								942.04
100727	863,500.55	2,030,994.24		SLPB								943.30
100728	862,840.58	2,031,046.30		BL SLPB								944.08
100729	862,839.98	2,031,047.00		BL SLPB								944.17
100730	862,833.81	2,030,965.55		SLPB								943.21
100731	862,829.84	2,030,910.30		SLPB								941.55
100732	862,829.94	2,030,853.40		SLPB								941.20
100733	862,832.00	2,030,854.70		SLPB								940.83
100734	862,933.10	2,030,850.47		SLPB								940.75
100735	863,032.86	2,030,853.18		SLPB								940.70

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100736	863,115.05	2,030,851.88		SLPB								940.61
100737	863,124.43	2,030,916.24		SLPB								942.06
100738	863,122.70	2,031,003.98		SLPB								942.41
100739	863,129.11	2,031,070.30		SLPB								941.43
100740	863,128.04	2,031,138.09		SLPB								941.76
100741	863,129.15	2,031,227.72		SLPB								941.98
100742	863,129.36	2,031,309.94		SLPB								941.55
100743	863,125.44	2,031,386.59		SLPB								942.04
100744	863,121.98	2,031,456.46		SLPB								941.97
100745	863,128.68	2,031,523.09		SLPB								941.44
100746	863,641.99	2,031,799.40		GRND								956.72
100747	863,542.03	2,031,799.68		GRND								955.06
100748	863,442.23	2,031,799.78		GRND								955.10
100749	863,342.04	2,031,799.86		GRND								955.16
100750	863,242.48	2,031,799.77		GRND								955.09
100751	863,142.37	2,031,799.74		GRND								957.63
100752	863,042.23	2,031,800.15		GRND								954.97
100753	862,941.45	2,031,799.59		GRND								954.91
100754	862,841.70	2,031,799.92		GRND								955.09
100755	862,742.15	2,031,799.88		GRND								955.00
100756	862,659.62	2,031,599.58		GRND								947.86
100757	862,648.38	2,031,499.59		GRND								949.89
100758	862,637.22	2,031,399.61		GRND								952.03
100759	862,626.40	2,031,299.25		GRND								953.83
100760	862,626.82	2,031,199.80		GRND								951.98
100761	862,627.59	2,031,099.33		GRND								949.77
100762	862,587.32	2,030,897.13		GRND								959.52
100763	862,593.47	2,030,998.31		GRND								959.34
100764	862,597.45	2,031,100.93		GRND								959.77
100765	862,599.01	2,031,198.65		GRND								961.07
100766	862,601.24	2,031,299.37		GRND								962.05
100767	862,608.15	2,031,399.91		GRND								961.52
100768	862,618.13	2,031,499.96		GRND								960.09
100769	862,624.08	2,031,599.71		GRND								959.65
100770	862,631.37	2,031,692.73		GRND								958.91
100771	863,642.64	2,031,804.73		GRND								956.85
100772	863,158.05	2,031,762.15		GRND								947.32
100773	863,240.68	2,031,763.20		GRND								947.36
100774	863,242.07	2,031,777.63		GRND								947.56
100775	863,148.46	2,031,775.40		GRND								949.26
100776	863,138.00	2,031,753.26		GRND								947.01

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100777	863,132.56	2,031,764.71		GRND								947.54
100778	863,134.27	2,031,777.51		GRND								950.13
100779	863,050.44	2,031,779.24		GRND								947.84
100780	863,050.61	2,031,765.32		GRND								947.59
100781	863,030.64	2,031,766.62		GRND								948.84
100782	863,029.35	2,031,781.55		GRND								949.28
100783	862,942.95	2,031,765.34		GRND								949.19
100784	862,940.70	2,031,783.39		GRND								949.61
100785	862,841.39	2,031,783.91		GRND								949.41
100786	862,826.94	2,031,760.24		GRND								948.82
100787	862,742.43	2,031,784.50		GRND								949.71
100788	862,663.04	2,031,782.20		GRND								949.96
100789	862,665.65	2,031,766.49		GRND								949.27
100790	862,741.74	2,031,764.50		GRND								949.08
100791	862,808.51	2,031,762.31		GRND								949.22
100792	863,449.53	2,031,762.43		GRND								947.33
100793	863,360.84	2,031,764.64		GRND								947.41
100794	863,306.06	2,031,763.15		GRND								947.27
100795	863,305.58	2,031,777.22		GRND								947.33
100796	863,360.68	2,031,777.85		GRND								947.58
100797	863,452.03	2,031,777.85		GRND								947.57
100798	863,469.22	2,031,777.71		GRND								947.47
100799	863,470.59	2,031,762.27		GRND								947.48
100800	863,541.75	2,031,764.09		GRND								947.43
100801	863,541.53	2,031,777.99		GRND								947.51
100802	863,614.50	2,031,775.45		GRND								947.89
100803	863,613.00	2,031,763.97		GRND								947.63
100804	862,646.82	2,031,799.62		GRND								955.58
100805	862,631.56	2,031,800.14		GRND								960.58
100806	862,365.32	2,031,600.03		GRND								986.68
100807	862,328.48	2,031,800.93		GRND								971.10
100808	862,334.44	2,031,901.33		GRND								971.21
100809	862,337.06	2,032,010.49		GRND								970.19
100810	862,358.50	2,032,072.95		GRND								969.10
100811	862,403.39	2,032,107.10		GRND								970.33
100812	862,455.46	2,032,115.60		GRND								972.21
100813	862,541.84	2,032,119.26		GRND								970.96
100814	862,643.02	2,032,118.68		GRND								971.33
100815	862,741.23	2,032,119.14		GRND								971.13
100816	862,841.83	2,032,118.96		GRND								971.18
100817	862,940.90	2,032,118.37		GRND								971.30

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100818	863,042.97	2,032,119.99		GRND								970.81
100819	863,142.41	2,032,118.24		GRND								971.32
100850	863,704.38	2,031,868.84		BL SLPT#BL SLPB AS								977.12
100851	863,699.61	2,031,905.67		SLPB ASH								977.16
100852	863,680.15	2,031,917.91		SLPB ASH								977.57
100853	863,641.76	2,031,919.89		SLPB ASH								977.63
100854	863,641.65	2,031,898.93		GRND ASH								976.57
100855	863,638.59	2,031,866.40		SLPT ASH								976.20
100856	863,632.75	2,031,868.15		MISC PIPE END								976.92
100857	863,542.12	2,031,862.81		SLPT ASH								976.07
100858	863,542.00	2,031,899.30		GRND ASH								976.90
100859	863,602.33	2,031,922.55		SLPB ASH								977.51
100860	863,543.93	2,031,941.44		SLPB ASH								977.53
100861	863,476.90	2,031,968.71		SLPB ASH								977.85
100862	863,441.80	2,031,969.43		SLPB ASH								978.11
100863	863,442.24	2,031,898.88		GRND ASH								976.74
100864	863,441.41	2,031,862.06		SLPT ASH								975.87
100865	863,461.26	2,031,867.11		MISC PIPE								976.90
100866	863,341.73	2,031,863.27		SLPT ASH								975.98
100867	863,342.18	2,031,899.51		GRND ASH								976.81
100868	863,351.42	2,031,968.98		SLPB ASH								978.12
100869	863,242.25	2,031,987.50		SLPB ASH								984.58
100870	863,242.74	2,031,956.16		GRND ASH								983.62
100871	863,242.75	2,031,899.22		GRND ASH								980.99
100872	863,242.10	2,031,875.95		SLPT ASH								980.31
100873	863,342.14	2,031,956.36		GRND ASH								978.31
100874	863,442.16	2,031,954.16		GRND ASH								977.90
100875	863,478.93	2,031,951.90		GRND Ash								977.77
100876	863,542.15	2,031,927.00		GRND Ash								977.02
100877	863,196.43	2,031,996.88		SLPB ASH								987.76
100878	863,195.73	2,031,956.25		GRND Ash								986.19
100879	863,174.43	2,031,907.87		GRND Ash								986.00
100880	863,173.41	2,031,890.80		SLPT ASH								985.73
100881	863,167.00	2,031,878.78		SLPT ASH								984.00
100882	863,143.19	2,031,880.22		SLPT ASH								984.19
100883	863,116.95	2,031,881.01		SLPT ASH								984.11
100884	863,111.69	2,031,890.24		SLPT ASH								985.74
100885	863,107.95	2,031,888.31		SLPB1 ASH								984.35
100886	863,138.81	2,031,894.21		GRND Ash								986.22
100887	863,138.46	2,031,895.89		MISC 30IN PIPE								986.07
100888	863,140.25	2,031,897.16		MISC 8IN PIPE								986.19

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100889	863,174.86	2,031,888.68		SLPB1 ASH								984.58
100890	863,141.87	2,031,899.43		GRND Ash								986.30
100891	863,142.08	2,031,955.24		GRND Ash								987.28
100892	863,142.02	2,031,990.99		GRND Ash								987.92
100893	863,095.77	2,031,994.66		BL SLPB ASH								987.40
100894	863,100.17	2,031,954.85		GRND Ash								986.73
100895	863,065.83	2,031,881.28		SLPT ASH								982.19
100896	863,057.56	2,031,907.79		GRND Ash								982.62
100897	863,042.21	2,031,899.45		GRND Ash								982.24
100898	863,042.63	2,031,954.23		GRND Ash								983.60
100899	863,041.74	2,031,987.80		SLPB ASH								984.59
100900	862,941.77	2,031,986.51		SLPB ASH								984.07
100901	862,942.62	2,031,954.91		GRND Ash								983.28
100902	862,942.31	2,031,899.84		GRND Ash								981.64
100903	862,942.27	2,031,877.06		SLPT ASH								980.75
100904	862,841.70	2,031,877.20		SLPT ASH								981.31
100905	862,842.40	2,031,899.22		GRND Ash								981.92
100906	862,842.26	2,031,954.34		GRND Ash								983.61
100907	862,840.42	2,031,987.32		SLPB ASH								984.23
100908	862,741.72	2,031,986.97		SLPB ASH								984.26
100909	862,742.02	2,031,954.54		GRND Ash								983.44
100910	862,741.97	2,031,899.05		GRND Ash								982.13
100911	862,743.17	2,031,877.28		SLPT ASH								981.80
100912	862,816.87	2,031,884.10		MISC PIPE END								979.83
100913	862,679.11	2,031,883.36		MISC PIPE END								979.98
100914	862,643.00	2,031,879.10		SLPT ASH								981.98
100915	862,642.32	2,031,899.46		GRND Ash								982.67
100916	862,641.72	2,031,953.98		GRND Ash								983.51
100917	862,642.10	2,031,986.57		SLPB ASH								984.11
100918	862,554.33	2,031,987.29		SLPB ASH								984.18
100919	862,565.79	2,031,952.95		GRND Ash								983.72
100920	862,542.18	2,031,899.53		GRND Ash								982.90
100921	862,603.84	2,031,879.23		SLPT ASH								982.48
100922	862,575.17	2,031,869.47		SLPT ASH								982.15
100923	862,530.81	2,031,921.45		GRND Ash								983.47
100924	862,512.06	2,031,945.17		SLPB ASH								984.18
100925	862,468.48	2,031,898.92		SLPB ASH								983.87
100926	862,463.11	2,031,853.53		SLPB ASH								984.37
100927	862,496.77	2,031,868.01		GRND Ash								983.43
100928	862,505.29	2,031,895.64		GRND Ash								983.61
100929	862,542.15	2,031,799.60		GRND Ash								981.82

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100930	862,572.00	2,031,799.16		SLPT ASH								981.37
100931	862,493.55	2,031,799.39		GRND Ash								982.92
100932	862,460.47	2,031,799.42		SLPB ASH								984.52
100933	862,456.12	2,031,699.66		SLPB ASH								984.20
100934	862,487.30	2,031,699.34		GRND Ash								982.68
100935	862,542.37	2,031,699.99		GRND Ash								981.69
100936	862,565.33	2,031,699.23		SLPT ASH								981.15
100937	862,558.72	2,031,601.92		SLPT ASH								981.02
100938	862,536.34	2,031,599.31		GRND Ash								981.57
100939	862,483.26	2,031,599.53		GRND Ash								982.71
100940	862,460.10	2,031,600.18		GRND Ash								983.41
100941	862,450.66	2,031,601.72		SLPB ASH								984.00
100942	862,445.28	2,031,499.49		SLPB ASH								984.13
100943	862,459.82	2,031,500.55		GRND Ash								983.41
100944	862,477.51	2,031,499.79		GRND Ash								982.69
100945	862,530.88	2,031,499.89		GRND Ash								981.43
100946	862,557.31	2,031,498.78		SLPT ASH								980.90
100947	862,546.78	2,031,400.76		SLPT ASH								980.04
100948	862,525.60	2,031,399.53		GRND Ash								981.39
100949	862,472.92	2,031,399.29		GRND Ash								982.75
100950	862,454.29	2,031,400.23		GRND Ash								983.47
100951	862,440.60	2,031,401.40		SLPB ASH								984.10
100952	862,435.61	2,031,299.59		SLPB ASH								984.14
100953	862,449.16	2,031,300.41		GRND Ash								983.35
100954	862,468.35	2,031,299.27		GRND Ash								982.67
100955	862,520.31	2,031,299.82		GRND Ash								981.67
100956	862,545.51	2,031,299.93		SLPT ASH								980.56
100957	862,535.19	2,031,199.54		SLPT ASH								982.24
100958	862,567.76	2,031,200.26		GRND Ash								972.16
100959	862,514.96	2,031,199.83		GRND Ash								982.24
100960	862,463.20	2,031,199.21		GRND Ash								982.44
100961	862,443.61	2,031,200.51		GRND Ash								983.49
100962	862,430.25	2,031,201.14		SLPB ASH								984.31
100963	862,426.14	2,031,108.96		SLPB ASH								984.02
100964	862,412.43	2,031,057.77		SLPB ASH								986.81
100965	862,429.02	2,031,102.55		BL SLPB ASH								984.11
100966	862,460.66	2,031,093.81		SLPB ASH								983.58
100967	862,455.17	2,031,090.94		BL SLPT1 ASH								984.07
100968	862,432.29	2,031,033.39		SLPT1 ASH								987.92
100969	862,443.59	2,031,031.25		SLPB ASH								984.32
100970	862,411.57	2,031,029.67		GRND Ash								987.73

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
100971	862,422.93	2,031,000.23		SLPT1 ASH								988.00
100972	862,409.86	2,030,997.83		GRND Ash								987.92
100973	862,435.16	2,031,001.02		SLPB ASH								984.47
100974	862,417.68	2,030,935.55		SLPB ASH								983.77
100975	862,405.76	2,030,938.33		SLPT1 ASH								987.50
100976	862,438.74	2,031,100.02		GRND Ash								984.01
100977	862,457.89	2,031,099.33		GRND Ash								983.69
100978	862,510.13	2,031,099.60		GRND Ash								982.53
100979	862,529.31	2,031,099.16		SLPT ASH								982.07
100980	862,563.07	2,031,099.20		GRND Ash								971.48
100981	862,557.51	2,030,999.49		GRND Ash								971.49
100982	862,524.21	2,030,999.70		SLPT ASH								982.11
100983	862,504.65	2,030,999.49		GRND Ash								982.41
100984	862,451.48	2,030,999.62		GRND Ash								984.06
100985	862,432.21	2,030,940.31		GRND Ash								983.82
100986	862,450.31	2,030,941.99		GRND Ash								983.57
100987	862,442.13	2,030,899.75		GRND Ash								983.37
100988	862,430.68	2,030,899.78		SLPB ASH								983.39
100989	862,464.28	2,030,900.22		GRND Ash								982.66
100990	862,500.10	2,030,900.24		GRND Ash								982.33
100991	862,518.94	2,030,899.20		SLPT ASH								982.16
100992	862,551.71	2,030,898.80		GRND Ash								971.72
100993	862,547.22	2,030,799.25		GRND Ash								971.44
100994	862,515.04	2,030,799.97		SLPT ASH								982.11
100995	862,498.66	2,030,799.66		GRND Ash								982.19
100996	862,467.30	2,030,799.28		SLPB ASH								982.02
100997	862,492.10	2,030,714.52		SLPB ASH								984.01
100998	862,514.62	2,030,745.91		GRND Ash								981.95
100999	862,514.74	2,030,747.21		SLPT ASH								982.02
101000	862,520.60	2,030,718.61		SLPT#SLPB ASH								982.26
101001	862,545.18	2,030,750.45		GRND Ash								973.43
101002	862,548.41	2,030,754.01		GRND Ash								972.10
101003	862,553.44	2,030,749.76		BL GRBR								971.81
101004	862,525.57	2,030,720.12		GRBR								981.11
101005	862,593.60	2,031,699.69		GRND Ash								971.74
101006	862,598.47	2,031,800.32		GRND Ash								971.70
101007	863,142.91	2,031,849.45		GRND Ash								974.28
101008	863,116.41	2,031,852.58		SLPT2 ASH								975.28
101009	863,108.31	2,031,854.31		SLPB2 ASH								973.28
101010	863,167.63	2,031,854.32		SLPT2 ASH								975.68
101011	863,174.59	2,031,855.26		SLPB2 ASH								973.55

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
101012	863,241.91	2,031,848.48		GRND Ash								971.29
101013	863,341.67	2,031,849.20		GRND Ash								971.57
101014	863,441.91	2,031,849.22		GRND Ash								971.47
101015	863,541.95	2,031,847.89		GRND Ash								971.31
101016	863,565.18	2,031,846.75		GRND Ash								970.70
101017	863,619.03	2,031,972.44		GRND Random								994.42
101018	863,542.21	2,031,984.70		GRND Random								990.51
101019	863,478.90	2,031,990.45		GRND Random								985.34
101020	863,441.79	2,031,990.41		GRND Random								985.25
101021	863,342.13	2,031,991.49		GRND Random								985.54
101022	863,663.05	2,031,986.29		BL SLPT RANDOM								999.96
101023	863,611.85	2,031,985.05		SLPT RANDOM								998.56
101024	863,545.02	2,031,991.60		SLPT RANDOM								993.16
101025	863,479.15	2,031,998.22		SLPT RANDOM								988.24
101026	863,442.27	2,031,998.79		SLPT RANDOM								988.20
101027	863,342.43	2,031,996.73		SLPT RANDOM								987.32
101028	863,241.33	2,031,997.73		SLPT RANDOM								987.53
101029	863,141.67	2,031,999.63		SLPT ASH								988.00
101030	863,042.17	2,031,998.63		SLPT RANDOM								987.73
101031	862,941.65	2,031,998.24		SLPT RANDOM								987.68
101032	862,842.04	2,031,998.69		SLPT RANDOM								987.65
101033	862,741.85	2,031,998.53		SLPT RANDOM								987.75
101034	862,642.12	2,031,998.36		SLPT RANDOM								987.71
101035	862,547.87	2,031,998.55		SLPT RANDOM								987.80
101036	862,502.22	2,031,953.93		SLPT RANDOM								987.61
101037	862,456.46	2,031,903.73		SLPT RANDOM								987.73
101038	862,454.87	2,031,893.65		SLPT RANDOM								987.71
101039	862,449.45	2,031,799.58		SLPT RANDOM								987.70
101040	862,444.29	2,031,699.31		SLPT RANDOM								987.51
101041	862,439.26	2,031,600.17		SLPT RANDOM								987.60
101042	862,433.87	2,031,499.36		SLPT RANDOM								987.66
101043	862,429.15	2,031,399.11		SLPT RANDOM								987.52
101044	862,423.55	2,031,299.42		SLPT RANDOM								987.44
101045	862,418.31	2,031,199.31		SLPT RANDOM								987.64
101046	862,413.69	2,031,099.24		SLPT RANDOM								987.67
101047	862,405.92	2,030,999.60		SLPT RANDOM								987.73
101048	862,402.06	2,030,940.67		SLPT RANDOM								987.69
101049	862,394.33	2,030,501.75		BL SLPT FINISHED								1,012.68
101050	862,391.78	2,030,571.08		SLPT FINISHED								1,013.20
101051	862,390.17	2,030,636.10		SLPT FINISHED								1,011.80
101052	862,376.79	2,030,700.74		SLPT FINISHED								1,006.00

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
101053	862,359.54	2,030,800.08		SLPT FINISHED								997.68
101054	862,338.10	2,030,898.46		SLPT FINISHED								989.28
101055	862,333.01	2,030,942.96		SLPT FINISHED								986.72
101056	862,333.90	2,030,999.81		SLPT FINISHED								986.47
101057	862,339.44	2,031,099.94		SLPT FINISHED								986.44
101058	862,345.46	2,031,199.46		SLPT FINISHED								986.49
101059	862,350.35	2,031,299.31		SLPT FINISHED								986.60
101060	862,355.17	2,031,398.85		SLPT FINISHED								986.60
101061	862,360.66	2,031,499.60		SLPT FINISHED								986.52
101062	862,365.79	2,031,599.97		SLPT FINISHED								986.59
101063	862,371.55	2,031,701.61		SLPT FINISHED								986.60
101064	862,375.51	2,031,801.75		SLPT FINISHED								986.68
101065	862,381.53	2,031,900.85		SLPT FINISHED								986.75
101066	862,383.36	2,032,000.35		SLPT FINISHED								985.79
101067	862,395.56	2,032,041.06		SLPT FINISHED								985.33
101068	862,423.82	2,032,065.84		SLPT FINISHED								985.32
101069	862,457.55	2,032,074.77		SLPT FINISHED								985.74
101070	862,541.79	2,032,072.53		SLPT FINISHED								986.57
101071	862,643.03	2,032,071.83		SLPT FINISHED								986.63
101072	862,741.61	2,032,071.68		SLPT FINISHED								986.66
101073	862,841.66	2,032,071.71		SLPT FINISHED								986.69
101074	862,942.40	2,032,072.40		SLPT FINISHED								986.47
101075	863,041.76	2,032,072.16		SLPT FINISHED								986.61
101076	863,141.92	2,032,071.50		SLPT FINISHED								986.75
101077	863,242.27	2,032,071.87		SLPT FINISHED								986.64
101078	863,342.79	2,032,071.93		SLPT FINISHED								986.63
101079	863,391.57	2,032,071.60		SLPT FINISHED								986.70
101080	863,419.04	2,032,066.92		SLPT FINISHED								986.77
101081	863,425.76	2,032,070.23		BL SLPB Finished								986.57
101082	863,342.79	2,032,091.94		SLPB Finished								980.38
101083	863,242.09	2,032,117.15		SLPB Finished								972.02
101084	863,141.43	2,032,140.29		SLPB Finished								964.25
101085	863,142.00	2,032,144.42		GRND								964.30
101086	863,096.88	2,032,153.20		SLPB Finished								961.14
101087	863,042.28	2,032,154.65		SLPB Finished								960.30
101088	862,941.60	2,032,155.31		SLPB Finished								959.73
101089	862,842.69	2,032,155.86		SLPB Finished								959.21
101090	862,742.26	2,032,156.37		SLPB Finished								959.39
101091	862,642.02	2,032,158.23		SLPB Finished								958.62
101092	862,542.07	2,032,158.96		SLPB Finished								958.15
101093	862,451.03	2,032,160.00		BC SLPB Finished								957.50

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
101094	862,384.97	2,032,144.08		SLPB Finished								957.21
101095	862,332.45	2,032,098.18		SLPB Finished								957.75
101096	862,294.50	2,032,010.33		EC SLPB Finished								956.08
101097	862,288.63	2,031,902.36		SLPB Finished								956.16
101098	862,285.13	2,031,801.60		SLPB Finished								956.64
101099	862,279.62	2,031,701.15		SLPB Finished								957.26
101100	862,273.76	2,031,650.13		SLPB Finished								956.44
101101	863,808.34	2,030,749.00		BL SLPT								1,001.77
101102	863,807.77	2,030,808.11		SLPT								998.07
101103	863,808.55	2,030,864.79		SLPT								997.72
101104	863,810.12	2,030,920.04		SLPT								997.58
101105	863,808.98	2,030,975.52		SLPT								997.34
101106	863,808.84	2,031,014.52		SLPT								997.23
101107	863,815.69	2,030,995.99		BL SLPB ASH								995.89
101108	863,831.17	2,030,989.91		SLPB ASH								990.56
101109	863,857.79	2,030,985.33		SLPB ASH								981.34
101110	863,865.60	2,030,934.88		SLPB ASH								980.94
101111	863,866.99	2,030,892.53		SLPB ASH								981.05
101112	863,869.63	2,030,881.17		SLPB ASH								980.87
101113	863,885.61	2,030,855.11		SLPB ASH								979.86
101114	863,893.82	2,030,840.85		SLPB ASH								979.67
101115	863,887.58	2,030,805.67		SLPB ASH								981.28
101116	863,880.20	2,030,797.02		SLPB ASH								981.41
101117	863,859.30	2,030,790.43		SLPB ASH								981.99
101118	863,852.37	2,030,823.39		SLPB ASH								983.37
101119	863,845.74	2,030,843.08		SLPB ASH								985.72
101120	863,834.60	2,030,886.23		SLPB ASH								989.65
101121	863,819.23	2,030,922.63		SLPB ASH								994.53
101122	863,812.88	2,030,945.46		SLPB ASH								996.58
101123	863,827.59	2,030,911.82		BL SLPT ASH								993.02
101124	863,818.08	2,030,944.17		SLPT ASH								996.89
101125	863,814.28	2,030,992.60		SLPT ASH								997.01
101126	863,830.08	2,030,975.61		SLPT ASH								997.19
101127	863,843.11	2,030,946.01		SLPT ASH								995.57
101128	863,850.72	2,030,917.03		SLPT ASH								991.64
101129	863,859.84	2,030,879.20		SLPT ASH								986.50
101130	863,872.00	2,030,864.10		SLPT ASH								984.64
101131	863,886.96	2,030,844.43		SLPT ASH								983.42
101132	863,884.78	2,030,817.64		SLPT ASH								982.15
101133	863,882.66	2,030,803.26		SLPT ASH								981.99
101134	863,861.23	2,030,794.08		SLPT ASH								982.49

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
101135	863,813.52	2,031,994.98		BL SLPT ASH								999.01
101136	863,865.62	2,031,981.70		SLPT ASH								993.49
101137	863,808.57	2,031,982.13		BL SLPT1 ASH								998.92
101138	863,862.72	2,031,969.33		SLPT1 ASH								993.30
101139	863,913.53	2,031,958.91		SLPT1 ASH								988.15
101140	863,916.42	2,031,970.68		SLPT ASH								988.16
101141	863,971.11	2,031,960.15		SLPT ASH								982.66
101142	863,967.91	2,031,948.65		SLPT1 ASH								982.73
101143	864,006.91	2,031,940.50		SLPT1 ASH								978.60
101144	864,012.14	2,031,950.35		SLPT ASH								978.47
101145	864,040.62	2,031,940.51		SLPT ASH								975.84
101146	864,035.48	2,031,929.15		SLPT1 SLPB ASH								975.67
101147	864,005.60	2,031,930.33		SLPB ASH								975.75
101148	863,953.35	2,031,926.66		SLPB ASH								975.83
101149	863,907.40	2,031,923.35		SLPB ASH								976.76
101150	863,871.63	2,031,923.03		SLPB ASH								978.01
101151	863,844.97	2,031,945.14		SLPB ASH								986.06
101152	863,809.80	2,031,974.41		SLPB ASH								997.36
101153	864,054.72	2,031,938.64		BL SLPB								975.91
101154	864,090.27	2,031,937.72		SLPB								975.68
101155	864,089.14	2,031,958.32		BL SLPB								981.12
101156	864,039.18	2,031,956.15		SLPB								981.12
101157	863,857.63	2,031,953.19		MISC CORNER BREA								988.11
101200	863,764.09	2,031,925.21		BL SLPB								996.00
101201	863,764.58	2,031,940.59		SLPB								996.57
101202	863,772.29	2,031,933.09		BL SLPT								999.58
101203	863,771.91	2,031,936.11		SLPT								999.64
101204	863,799.65	2,031,935.73		SLPT								999.80
101205	863,799.71	2,031,933.63		CL SLPT								999.78
101206	863,803.72	2,031,940.25		SLPB								997.58
101207	863,809.33	2,031,931.53		SLPB								996.46
101208	863,806.02	2,031,926.03		SLPB#BL GRBR								996.78
101209	863,832.14	2,031,900.28		GRBR								988.55
101210	863,862.32	2,031,874.58		GRBR#BL SLPB								979.94
101211	863,884.45	2,031,863.37		GRBR								976.48
101212	863,907.43	2,031,865.55		GRBR								975.88
101213	863,907.82	2,031,880.47		GRBR								975.72
101214	863,924.92	2,031,898.48		GRBR								975.29
101215	863,968.37	2,031,900.69		GRBR								975.13
101216	864,023.67	2,031,902.67		GRBR								975.04
101217	863,908.89	2,031,906.05		GRND								976.24

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
101218	863,888.54	2,031,889.70		GRND								977.10
101219	863,872.84	2,031,903.33		SLPB								977.80
101220	863,872.09	2,031,922.86		SLPB								977.99
101221	863,842.04	2,031,947.63		SLPB								986.98
101222	863,808.90	2,031,978.25		SLPB								998.04
101223	863,805.50	2,031,981.98		BL SLPT								999.10
101224	863,805.67	2,031,939.58		SLPT								997.41
101225	863,834.92	2,031,925.01		GRND								988.88
101226	863,904.27	2,031,852.65		BL SLPB								972.92
101227	863,864.24	2,031,853.86		SLPB								973.23
101228	863,803.29	2,031,854.44		SLPB								973.01
101229	863,748.27	2,031,853.80		SLPB								973.08
101230	863,697.37	2,031,852.88		SLPB								973.06
101231	863,665.52	2,031,855.84		SLPB								973.72
101232	863,705.05	2,031,870.39		BL SLPT#BL GRBR								978.24
101233	863,713.82	2,031,873.84		GRBR								979.75
101234	863,740.70	2,031,899.94		GRBR								988.37
101235	863,764.31	2,031,922.74		GRBR								995.64
101236	863,788.42	2,031,923.16		GRND								996.08
101237	863,814.31	2,031,892.06		GRND								985.76
101238	863,782.92	2,031,890.88		GRND								985.39
101239	863,751.96	2,031,890.98		GRND								985.34
101240	863,667.36	2,031,866.61		SLPT								977.86
101241	863,632.92	2,031,872.92		SLPT								979.97
101242	863,630.95	2,031,884.53		CULV PIPE END								979.86
101243	863,632.99	2,031,887.14		POST								979.69
101244	863,629.14	2,031,886.92		POST								979.83
101245	863,571.96	2,031,876.25		SLPT								980.41
101246	863,541.86	2,031,877.69		SLPT								980.75
101247	863,468.49	2,031,879.74		SLPT								981.07
101248	863,456.45	2,031,882.41		SLPT								982.54
101249	863,458.88	2,031,896.76		CULV PIPE END								982.22
101250	863,460.78	2,031,899.26		POST								982.40
101251	863,456.93	2,031,899.39		POST								982.41
101252	863,347.33	2,031,887.71		SLPT								983.77
101253	863,243.87	2,031,888.61		SLPT								984.12
101254	863,199.34	2,031,888.94		SLPT#BL SLPB								983.97
101255	863,205.62	2,031,932.89		SLPB								985.15
101256	863,218.44	2,031,970.67		SLPB								985.36
101257	863,226.57	2,031,991.79		SLPB								985.60
101258	863,244.21	2,031,990.06		SLPB								985.66

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
101259	863,340.72	2,031,989.76		SLPB								985.01
101260	863,443.67	2,031,988.35		SLPB								984.81
101261	863,483.72	2,031,985.91		SLPB								984.38
101262	863,550.15	2,031,958.52		SLPB								983.85
101263	863,582.81	2,031,943.70		SLPB								981.54
101264	863,613.11	2,031,930.78		SLPB								980.68
101265	863,669.95	2,031,924.88		SLPB								979.60
101266	863,693.57	2,031,924.43		SLPB#BL GRBR								979.63
101267	863,710.65	2,031,907.98		SLPB#BL GRBR1								979.80
101268	863,707.09	2,031,875.64		SLPB								978.70
101269	863,738.22	2,031,932.62		GRBR1								988.40
101270	863,721.71	2,031,952.98		GRBR								989.09
101271	863,747.86	2,031,978.20		GRBR								997.83
101272	863,754.91	2,031,949.90		GRBR1								994.44
101273	863,765.48	2,031,942.39		BL SLPT								996.71
101274	863,757.88	2,031,973.65		SLPT								998.46
101275	863,749.79	2,031,981.95		SLPT								999.55
101276	863,741.56	2,031,984.88		SLPT#BL EORG								999.57
101277	863,693.59	2,031,987.59		EORG								999.68
101278	863,659.47	2,031,987.12		EORG								999.92
101279	863,610.99	2,031,984.93		EORG								998.48
101280	863,555.38	2,031,990.50		EORG								993.95
101281	863,476.87	2,031,998.35		EORG								988.16
101282	863,442.63	2,031,999.11		EORG								988.10
101283	863,343.65	2,031,998.35		EORG								988.15
101284	863,243.73	2,031,999.14		EORG								988.09
101285	863,189.93	2,031,998.61		EORG								988.02
101286	863,097.34	2,032,000.15		EORG								987.84
101287	863,098.15	2,032,021.00		EORG								987.68
101288	863,194.81	2,032,024.68		EORG								987.51
101289	863,244.19	2,032,025.47		EORG								987.63
101290	863,347.80	2,032,022.84		EORG								987.64
101291	863,447.67	2,032,020.32		EORG								987.62
101292	863,479.32	2,032,018.85		EORG								987.55
101293	863,558.53	2,032,010.40		EORG								993.96
101294	863,621.30	2,032,009.52		EORG								998.81
101295	863,619.28	2,032,024.72		EORG								999.04
101296	863,613.20	2,032,021.17		BL SLPB								998.64
101297	863,587.35	2,032,021.37		SLPB								996.55
101298	863,589.17	2,032,029.89		EORG								999.07
101299	863,554.28	2,032,044.22		EORG								998.62

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
101300	863,547.84	2,032,026.51		SLPB								992.86
101301	863,488.36	2,032,039.22		SLPB								987.99
101302	863,492.60	2,032,060.88		EORG								993.91
101303	863,452.27	2,032,071.35		EORG								990.57
101304	863,450.53	2,032,057.79		SLPB								986.79
101305	863,343.53	2,032,098.66		EORG								981.67
101306	863,239.97	2,032,124.35		EORG								973.22
101307	863,143.26	2,032,149.32		EORG								965.26
101308	863,093.57	2,032,162.73		EORG								960.82
101309	863,105.47	2,032,182.24		EORG								960.92
101310	863,151.17	2,032,174.11		EORG								964.30
101311	863,245.94	2,032,147.83		EORG								972.66
101312	863,344.23	2,032,122.64		EORG								980.92
101313	863,448.53	2,032,098.87		EORG								989.26
101314	863,561.02	2,032,071.12		EORG#BL SLPT								998.37
101315	863,645.22	2,032,049.26		EORG								998.81
101316	863,649.77	2,032,070.58		SLPT								998.57
101317	863,743.38	2,032,067.96		SLPT								998.34
101318	863,744.16	2,032,032.31		EORG								999.19
101319	863,852.63	2,032,025.74		EORG								999.17
101320	863,856.14	2,032,036.77		SLPT								999.02
101321	863,975.99	2,032,033.51		SLPT								999.16
101322	863,975.85	2,032,021.33		EORG								999.37
101323	864,034.56	2,032,020.30		EORG								999.31
101324	864,034.60	2,032,033.55		SLPT								999.19
101325	864,035.62	2,031,992.35		BL EORG								999.78
101326	863,973.80	2,031,992.69		EORG								999.69
101327	863,859.64	2,031,993.58		EORG								999.79
101328	863,802.48	2,032,001.20		EORG								999.19
101329	863,740.85	2,032,005.01		EORG								999.61
101330	863,699.73	2,031,906.23		GRND								979.44
101331	863,679.91	2,031,917.63		GRND								979.65
101332	863,641.82	2,031,898.67		GRND								979.37
101333	863,642.05	2,031,920.27		GRND								979.95
101334	863,602.59	2,031,922.34		GRND								980.31
101335	863,544.28	2,031,941.49		GRND								982.37
101336	863,541.79	2,031,926.54		GRND								981.49
101337	863,542.32	2,031,899.50		GRND								981.14
101338	863,478.83	2,031,952.15		GRND								983.15
101339	863,477.22	2,031,968.59		GRND								983.76
101340	863,441.27	2,031,969.43		GRND								984.18

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
101341	863,441.45	2,031,954.35		GRND								983.53
101342	863,442.18	2,031,898.18		GRND								982.69
101343	863,341.94	2,031,899.68		GRND								984.13
101344	863,342.31	2,031,956.32		GRND								984.39
101345	863,351.19	2,031,969.02		GRND								984.58
101346	863,242.57	2,031,956.27		GRND								984.96
101347	863,242.68	2,031,899.11		GRND								984.37
101348	863,140.65	2,031,921.23		CULV PIPE END								986.67
101349	863,137.46	2,031,923.20		CULV 30IN PIPE END								986.70
101350	863,142.89	2,031,925.70		POST								986.53
101351	863,135.13	2,031,925.43		POST								986.76
101352	863,085.48	2,031,998.72		BL SLPT								987.94
101353	863,042.18	2,031,999.55		SLPT								987.95
101354	863,042.90	2,032,034.93		GRND								987.47
101355	862,939.44	2,032,035.68		GRND								987.35
101356	862,941.29	2,031,998.57		SLPT								988.00
101357	862,844.10	2,031,998.60		SLPT								987.90
101358	862,845.17	2,032,036.89		GRND								987.37
101359	862,740.17	2,032,037.38		GRND								987.35
101360	862,741.23	2,031,998.81		SLPT								988.06
101361	862,643.03	2,031,998.34		SLPT								988.10
101362	862,642.52	2,032,035.27		GRND								987.31
101363	862,550.09	2,032,036.38		GRND								987.32
101364	862,549.40	2,031,999.04		SLPT								988.10
101365	862,434.86	2,032,032.56		GRND								986.08
101366	862,421.50	2,031,958.46		GRND								987.03
101367	862,476.36	2,031,990.50		GRND								987.32
101368	862,503.64	2,031,957.70		SLPT								988.04
101369	862,454.53	2,031,901.06		SLPT								988.05
101370	862,415.25	2,031,899.52		GRND								987.32
101371	862,411.50	2,031,798.19		GRND								987.32
101372	862,448.17	2,031,797.83		SLPT								988.03
101373	862,443.15	2,031,696.71		SLPT								988.17
101374	862,406.63	2,031,698.17		GRND								987.39
101375	862,401.43	2,031,596.35		GRND								987.37
101376	862,437.09	2,031,592.11		SLPT								988.09
101377	862,433.40	2,031,498.16		SLPT								987.87
101378	862,394.92	2,031,501.03		GRND								987.32
101379	862,392.47	2,031,396.89		GRND								987.44
101380	862,427.16	2,031,393.11		SLPT								988.12
101381	862,421.70	2,031,297.57		SLPT								988.12

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
101382	862,384.25	2,031,300.02		GRND								987.42
101383	862,380.99	2,031,197.80		GRND								987.42
101384	862,417.70	2,031,199.89		SLPT								987.92
101385	862,413.82	2,031,098.84		SLPT								987.87
101386	862,374.33	2,031,101.16		GRND								987.32
101387	862,362.50	2,031,045.27		GRND								987.26
101388	862,412.63	2,031,079.72		SLPT								988.12
101389	862,406.46	2,031,050.41		SLPT								988.14
101390	862,405.85	2,031,042.96		BL EORG								987.88
101391	862,383.61	2,031,045.78		EORG1								987.76
101392	862,379.67	2,030,993.35		EORG1								987.58
101393	862,405.06	2,030,992.46		EORG								987.97
101394	862,403.70	2,030,940.97		EORG								988.07
101395	862,378.01	2,030,938.10		EORG1								987.85
101396	862,379.85	2,030,894.07		EORG1								991.09
101397	862,407.13	2,030,898.59		EORG								991.09
101398	862,414.77	2,030,799.15		EORG								999.30
101399	862,379.92	2,030,794.80		EORG1								998.81
101400	862,385.94	2,030,699.71		EORG1								1,006.33
101401	862,422.29	2,030,703.40		EORG								1,006.85
101402	862,427.57	2,030,639.13		EORG								1,012.44
101403	862,391.55	2,030,638.24		EORG1								1,011.79
101404	862,394.94	2,030,570.08		EORG1								1,012.45
101405	862,427.26	2,030,571.22		EORG								1,012.36
101406	862,429.82	2,030,502.04		EORG								1,011.17
101407	862,398.58	2,030,502.39		EORG1								1,012.07
101408	862,458.37	2,030,550.05		GRND								1,010.74
101409	862,460.10	2,030,589.82		GRND								1,011.56
101410	862,428.66	2,030,625.40		BL SLPT								1,012.50
101411	862,542.49	2,030,624.81		SLPT								1,012.73
101412	862,543.57	2,030,598.96		BL SLPB								1,011.58
101413	862,512.69	2,030,569.55		BL SLPT1								1,010.82
101414	862,550.49	2,030,577.00		SLPT1								1,011.03
101415	862,607.34	2,030,625.63		POST								1,012.74
101416	862,611.69	2,030,625.36		POST								1,012.65
101417	862,642.41	2,030,626.19		SLPT								1,012.72
101418	862,642.95	2,030,603.26		SLPB								1,011.79
101419	862,643.25	2,030,579.59		SLPT1								1,011.33
101420	862,744.73	2,030,580.24		SLPT1								1,011.20
101421	862,743.35	2,030,604.41		SLPB								1,012.26
101422	862,742.39	2,030,624.75		SLPT								1,012.57

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
101423	862,823.16	2,030,626.24		POST								1,012.22
101424	862,819.17	2,030,626.05		POST								1,012.41
101425	862,842.05	2,030,624.81		SLPT								1,012.48
101426	862,842.90	2,030,604.93		SLPB								1,012.11
101427	862,843.99	2,030,580.97		SLPT1								1,011.26
101428	862,948.62	2,030,581.56		SLPT1								1,011.23
101429	862,946.18	2,030,602.18		SLPB								1,011.69
101430	862,945.97	2,030,605.72		BL SLPT2								1,012.30
101431	862,942.59	2,030,624.32		SLPT								1,012.40
101432	863,041.99	2,030,625.07		SLPT								1,012.36
101433	863,042.27	2,030,605.31		SLPT2								1,012.22
101434	863,042.32	2,030,602.59		SLPB								1,011.59
101435	863,042.95	2,030,582.16		SLPT1								1,011.32
101436	863,145.62	2,030,583.64		SLPT1								1,011.54
101437	863,145.56	2,030,602.14		SLPB								1,011.66
101438	863,145.35	2,030,605.43		SLPT2								1,012.25
101439	863,141.77	2,030,626.95		SLPT								1,012.33
101440	863,140.31	2,030,626.22		POST								1,012.45
101441	863,126.14	2,030,626.45		POST								1,012.38
101442	863,241.70	2,030,625.97		SLPT								1,012.43
101443	863,241.37	2,030,604.75		SLPT2								1,012.19
101444	863,241.30	2,030,602.97		SLPB								1,011.83
101445	863,241.61	2,030,584.75		SLPT1								1,011.35
101446	863,346.21	2,030,585.20		SLPT1								1,011.41
101447	863,345.66	2,030,601.98		SLPB								1,011.93
101448	863,345.63	2,030,605.17		SLPT2								1,012.21
101449	863,341.36	2,030,624.94		SLPT								1,012.57
101450	863,441.82	2,030,626.56		SLPT								1,012.55
101451	863,442.57	2,030,606.50		SLPT2								1,012.14
101452	863,442.75	2,030,604.04		SLPB								1,011.84
101453	863,443.18	2,030,586.87		SLPT1								1,011.35
101454	863,483.83	2,030,624.01		POST								1,012.58
101455	863,487.52	2,030,624.24		POST								1,012.58
101456	863,542.39	2,030,625.38		SLPT								1,012.46
101457	863,541.93	2,030,605.33		SLPT2								1,011.96
101458	863,542.09	2,030,603.48		SLPB								1,011.75
101459	863,542.32	2,030,585.62		SLPT1								1,011.17
101460	863,643.50	2,030,586.42		SLPT1								1,011.35
101461	863,643.59	2,030,605.19		SLPB								1,012.07
101462	863,642.52	2,030,625.63		SLPT								1,012.53
101463	863,647.65	2,030,623.42		POST								1,012.48

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
101464	863,651.59	2,030,623.32		POST								1,012.61
101465	863,715.25	2,030,626.42		SLPT								1,012.57
101466	863,716.57	2,030,606.45		GRND								1,012.40
101467	863,717.93	2,030,590.13		SLPT1								1,011.48
101468	863,764.12	2,030,586.77		SLPT1								1,012.33
101469	863,768.17	2,030,568.83		SLPT1								1,012.93
101470	863,803.44	2,030,571.01		BL SLPT1								1,013.52
101471	863,810.99	2,030,593.35		SLPT1								1,012.10
101472	863,831.40	2,030,592.54		SLPT1								1,012.22
101473	863,830.12	2,030,624.67		BL SLPT1								1,012.24
101474	863,810.49	2,030,626.61		SLPT1								1,011.77
101475	863,762.99	2,030,624.89		SLPT								1,012.43
101476	863,775.36	2,030,633.90		SLPT								1,011.40
101477	863,791.98	2,030,715.99		GRND								1,004.57
101478	863,809.12	2,030,716.02		SLPT1								1,004.17
101479	863,807.16	2,030,807.71		SLPT1								997.97
101480	863,787.85	2,030,808.17		GRND								997.69
101481	863,768.35	2,030,792.15		BL SLPT								998.60
101482	863,766.41	2,030,824.45		SLPT								997.77
101483	863,764.11	2,030,899.30		SLPT								997.54
101484	863,786.88	2,030,898.21		GRND								997.32
101485	863,808.05	2,030,898.06		SLPT1								997.34
101486	863,809.45	2,031,000.12		SLPT1								997.30
101487	863,785.38	2,031,000.05		GRND								997.25
101488	863,764.16	2,030,999.56		SLPT								997.26
101489	863,765.42	2,031,099.20		SLPT								997.90
101490	863,789.25	2,031,098.23		GRND								997.44
101491	863,810.31	2,031,098.88		SLPT1								997.01
101492	863,810.25	2,031,197.15		SLPT1								997.17
101493	863,789.06	2,031,196.93		GRND								997.54
101494	863,765.65	2,031,200.00		SLPT								997.77
101495	863,765.85	2,031,299.87		SLPT								997.74
101496	863,788.20	2,031,299.47		GRND								997.28
101497	863,812.12	2,031,299.51		SLPT1								996.97
101498	863,810.77	2,031,402.80		SLPT1								997.26
101499	863,789.41	2,031,402.53		GRND								997.38
101500	863,764.63	2,031,399.80		SLPT								997.66
101501	863,765.01	2,031,496.36		SLPT								997.52
101502	863,784.59	2,031,496.33		GRND								997.40
101503	863,810.74	2,031,496.62		SLPT1								997.23
101504	863,778.46	2,031,530.23		MONF XCEL 15								997.69

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
101505	863,766.05	2,031,597.54		SLPT								997.76
101506	863,787.38	2,031,597.64		GRND								997.08
101507	863,811.12	2,031,597.91		SLPT1								997.15
101508	863,811.11	2,031,699.60		SLPT1								997.36
101509	863,785.32	2,031,699.60		GRND								997.29
101510	863,765.76	2,031,697.72		SLPT								997.93
101511	863,765.77	2,031,743.85		SLPT								998.01
101512	863,767.12	2,031,758.28		BL SLPB#BL GRBR								998.03
101513	863,766.06	2,031,745.06		SLPB								997.98
101514	863,770.35	2,031,753.80		BL SLPT								999.75
101515	863,770.08	2,031,750.92		SLPT								999.84
101516	863,804.87	2,031,752.34		SLPT								999.54
101517	863,804.93	2,031,755.59		CL SLPT								999.46
101518	863,789.46	2,031,744.84		SLPB								997.57
101519	863,811.15	2,031,745.49		SLPB#SLPT1								997.12
101520	863,811.43	2,031,762.29		SLPB#BL GRBR1								997.05
101521	863,787.39	2,031,762.44		GRND								997.24
101523	863,813.58	2,031,754.69		BL GRBR3								996.31
101524	863,763.76	2,031,749.12		BL GRBR2								997.26
101525	863,729.22	2,031,780.71		GRBR2								985.66
101526	863,731.73	2,031,794.02		GRBR								986.37
101527	863,696.91	2,031,826.12		GRBR								975.63
101528	863,697.79	2,031,810.55		GRBR2								974.91
101529	863,695.61	2,031,835.34		BL SLPB								973.04
101530	863,756.94	2,031,833.87		SLPB								973.06
101531	863,761.12	2,031,800.16		GRND								984.46
101532	863,795.78	2,031,798.88		GRND								984.95
101533	863,796.82	2,031,833.67		SLPB								973.08
101534	863,849.23	2,031,835.34		SLPB								973.03
101535	863,822.25	2,031,796.27		GRND								985.85
101536	863,840.45	2,031,790.34		GRBR1								988.07
101537	863,851.11	2,031,777.19		GRBR3								983.86
101538	863,871.64	2,031,797.23		GRBR3								977.84
101539	863,892.13	2,031,824.35		GRBR3								976.62
101540	863,904.65	2,031,830.40		GRBR3								975.96
101541	863,897.43	2,031,795.08		GRBR3								976.08
101542	863,861.98	2,031,810.29		GRBR1								981.67
101543	863,882.24	2,031,822.19		GRBR1								977.64
101544	863,895.14	2,031,839.11		SLPB								973.10
101545	863,911.52	2,031,839.67		SLPB								971.98
101546	862,676.05	2,031,898.31		POST								982.43

Refer to Sht. 61 for Location Description Codes

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Point No.	Northing	Easting	Subgrade Elev.	*Location Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	Finished Grade/Final As-built Shot
					Subgrade/ Geomembrane	Granular Drainage Material		Granular Drainage Material + Finished Grade		Topsoil		
						Required Thickness: Pond Bottom (2 feet), Pond Slopes (2.1 feet), Top of North and East Slope (1.5 feet)		Required Thickness: 6 ft (Interior of North and West Slopes)		Required Thicknes: 0.5 ft		
					As-Built Elevation	As-Built Elevation	Thickness, ft (B-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation	Thickness, ft (D-A)	As-Built Elevation
101547	862,679.99	2,031,899.10		POST								982.39
101548	862,678.44	2,031,896.48		CULV PIPE END								982.37
101549	862,815.30	2,031,893.81		CULV PIPE END								981.58
101550	862,816.84	2,031,896.02		POST								981.50
101551	862,812.89	2,031,895.49		POST								981.51
6007B	863,776.28	2,031,733.88	995.27	CHCK SG	995.27	996.84	1.57					
6009B	863,777.87	2,031,623.87	995.19	CHCK SG	995.19	996.72	1.53					
6011B	863,776.71	2,031,518.64	994.98	CHCK SG	994.98	996.56	1.58					
6013C	863,776.61	2,031,408.45	995.20	CHCK SG	995.20	996.73	1.53					
6015B	863,779.07	2,031,296.30	994.93	CHCK SG	994.93	996.46	1.52					
6017B	863,777.11	2,031,197.44	995.04	CHCK SG	995.04	996.52	1.48					
6019B	863,777.51	2,031,088.94	995.12	CHCK SG	995.12	996.68	1.56					
6021B	863,776.10	2,030,983.44	994.98	CHCK SG	994.98	996.50	1.52					
6023B	863,775.80	2,030,880.25	994.98	CHCK SG	994.98	996.55	1.57					
6025B	863,776.70	2,030,803.40	995.02	CHCK SG	995.02	996.56	1.53					

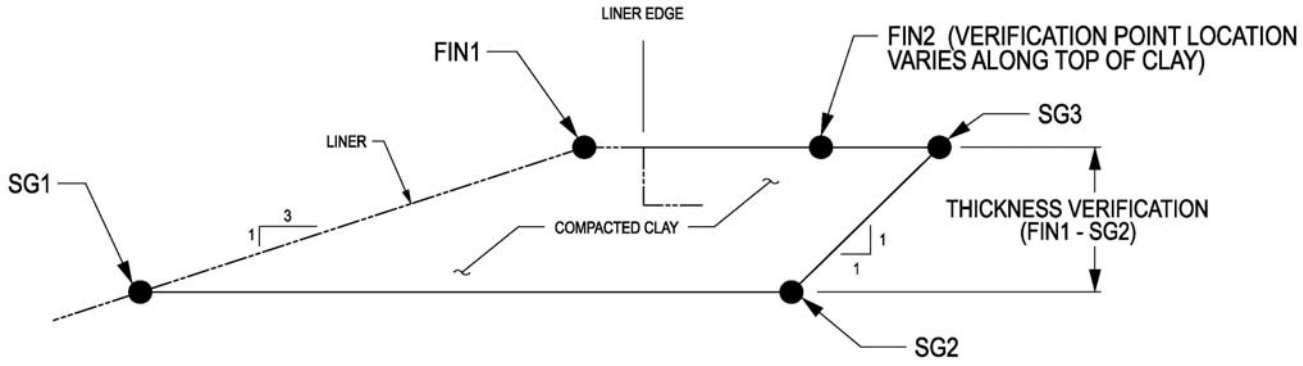
BL	Begin Line
EL	End Line
GRND	Ground
SG	Subgrade
SLPT	Slope Top
SLPB	Slope Bottom
GRBR	Grade Break
CLRD	Centerline of Road
BA BENCH	Bottom Ash Bench
EORG	Edge of Road Gravel

Elevation Tolerances:
SG/Embankments: +/-0.1 foot.
Thickness Tolerances:
Clay: -0.0, to +0.2 feet
GDM: -0.0, to +0.2 feet

Pond 3S Construction Survey Tabulation

Verification Survey - Clay Anchor (Typical)

Clay Verification Point	Grid No	Northing	Easting	Elevation	Clay Thickness, ft (FIN1 - SG2) 4' min. rq'd, built to 5' nominal
SG1	8013	862,941.87	2,031,992.09	979.1	5.0
SG2	8012	862,942.17	2,032,011.64	979.1	
SG3	8011	862,942.11	2,032,018.78	984.2	
FIN1	8210	862,942.00	2,032,006.05	984.1	
FIN2	8209	862,941.77	2,032,012.99	984.2	
SG1	8016	862,891.91	2,031,992.34	979.2	4.9
SG2	8015	862,892.58	2,032,012.08	979.1	
SG3	8087	862,892.97	2,032,018.51	984.2	
FIN1	8207	862,891.93	2,032,006.10	984.0	
FIN2	8208	862,891.94	2,032,014.61	984.2	
SG1	8017	862,842.14	2,031,991.58	979.2	5.1
SG2	8018	862,842.22	2,032,011.78	979.1	
SG3	8010	862,842.02	2,032,018.61	984.1	
FIN1	8206	862,842.01	2,032,006.69	984.2	
FIN2	8205	862,841.88	2,032,015.79	984.1	
SG1	8020	862,790.31	2,031,992.04	979.2	5.0
SG2	8019	862,791.21	2,032,012.26	979.1	
SG3	8086	862,791.32	2,032,019.28	984.3	
FIN1	8203	862,792.05	2,032,006.63	984.1	
FIN2	8204	862,792.15	2,032,018.17	984.1	
SG1	8021	862,741.68	2,031,991.90	979.2	5.0
SG2	8022	862,742.17	2,032,012.19	979.1	
SG3	8009	862,742.10	2,032,018.99	984.1	
FIN1	8202	862,741.90	2,032,006.25	984.1	
FIN2	8201	862,741.95	2,032,015.78	984.1	



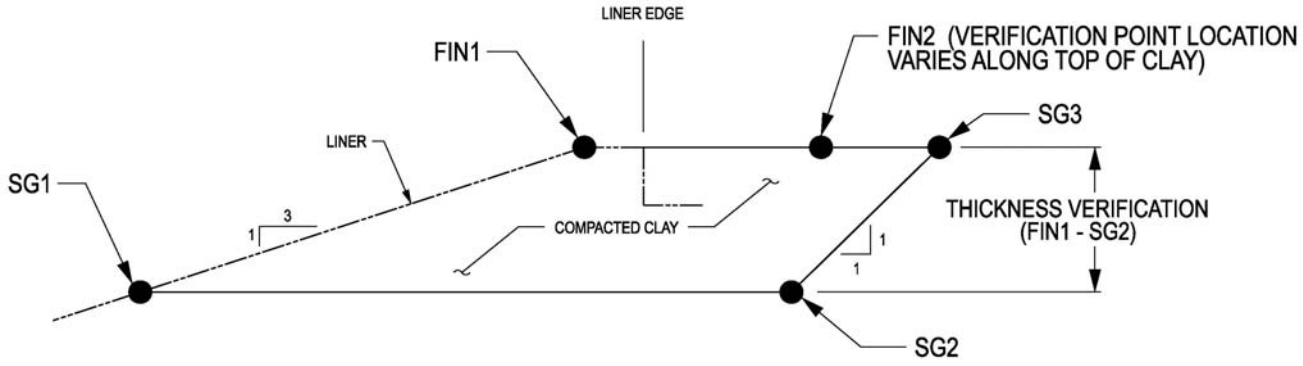
SECTION: CLAY ANCHOR SURVEY VERIFICATION

Thickness Tolerance
Clay Anchor: -0.0 foot, + 2 feet

Pond 3S Construction Survey Tabulation

Verification Survey - Clay Anchor (Typical)

Clay Verification Point	Grid No	Northing	Easting	Elevation	Clay Thickness, ft (FIN1 - SG2) 4' min. rq'd, built to 5' nominal
SG1	8024	862,695.51	2,031,991.98	979.1	5.0
SG2	8023	862,694.90	2,032,012.24	979.1	
SG3	8085	862,694.40	2,032,019.16	984.2	
FIN1	8199	862,692.01	2,032,006.24	984.1	
FIN2	8200	862,692.21	2,032,015.43	984.1	
SG1	8025	862,641.91	2,031,992.23	979.1	4.9
SG2	8026	862,642.03	2,032,012.22	979.2	
SG3	8008	862,642.10	2,032,018.79	984.3	
FIN1	8198	862,642.02	2,032,006.22	984.1	
FIN2	8197	862,642.09	2,032,016.27	984.1	
SG1	8027	862,591.58	2,031,991.85	979.1	4.9
SG2	8028	862,592.43	2,032,011.73	979.1	
SG3	8084	862,592.89	2,032,019.24	984.5	
FIN1	8195	862,592.08	2,032,006.16	984.0	
FIN2	8196	862,591.82	2,032,016.00	984.0	
SG1	8030	862,549.39	2,031,990.93	978.9	5.0
SG2	8029	862,540.79	2,032,010.79	979.1	
SG3	8007	862,539.08	2,032,018.26	984.9	
FIN1	8194	862,542.64	2,032,005.46	984.1	
FIN2	8192	862,529.80	2,032,008.12	984.3	
SG1	8032	862,511.12	2,031,953.45	979.4	4.9
SG2	8031	862,497.19	2,031,967.82	979.1	
SG3	8006	862,492.10	2,031,972.13	984.4	
FIN1	8190	862,502.29	2,031,964.62	984.0	
FIN2	8191	862,495.68	2,031,971.77	984.0	



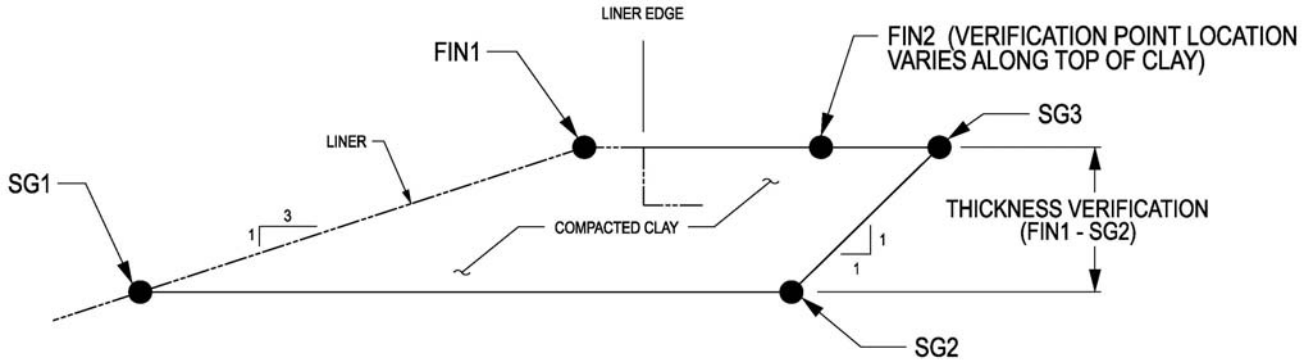
SECTION: CLAY ANCHOR SURVEY VERIFICATION

Thickness Tolerance
Clay Anchor: -0.0 foot, + 2 feet

Pond 3S Construction Survey Tabulation

Verification Survey - Clay Anchor (Typical)

Clay Verification Point	Grid No	Northing	Easting	Elevation	Clay Thickness, ft (FIN1 - SG2) 4' min. rq'd, built to 5' nominal
SG1	8033	862,462.38	2,031,903.16	979.1	5.0
SG2	8034	862,442.87	2,031,913.87	979.2	
SG3	8005	862,435.35	2,031,915.25	983.9	
FIN1	8189	862,447.24	2,031,910.03	984.2	
FIN2	8188	862,436.40	2,031,910.73	984.2	
SG1	8033	862,462.38	2,031,903.16	979.1	5.0
SG2	8035	862,441.09	2,031,899.25	979.1	
SG3	8004	862,433.50	2,031,899.42	984.0	
FIN1	8186	862,445.79	2,031,899.27	984.1	
FIN2	8187	862,435.24	2,031,898.58	984.2	
SG1	8037	862,459.08	2,031,852.70	979.1	5.0
SG2	8036	862,438.44	2,031,852.59	979.2	
SG3	8083	862,431.42	2,031,853.45	984.2	
FIN1	8185	862,444.22	2,031,849.33	984.2	
FIN2	8184	862,429.57	2,031,849.31	984.1	
SG1	8038	862,456.12	2,031,799.58	979.0	5.0
SG2	8039	862,436.38	2,031,800.83	979.1	
SG3	8003	862,428.48	2,031,799.46	984.1	
FIN1	8182	862,441.62	2,031,799.37	984.1	
FIN2	8183	862,427.50	2,031,800.47	984.1	
SG1	8041	862,454.21	2,031,750.61	979.0	5.0
SG2	8040	862,433.63	2,031,751.54	979.2	
SG3	8082	862,426.99	2,031,752.04	984.2	
FIN1	8181	862,439.27	2,031,748.72	984.2	
FIN2	8180	862,424.63	2,031,749.40	984.0	



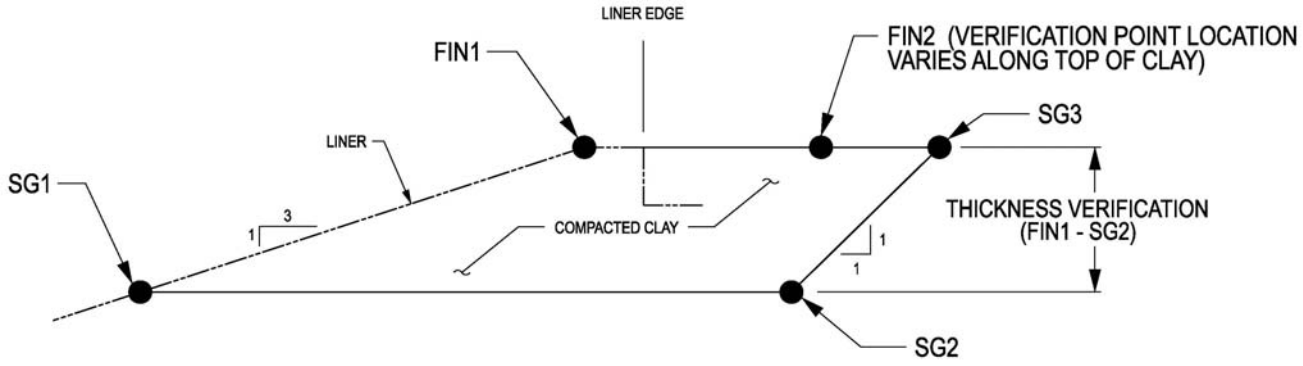
SECTION: CLAY ANCHOR SURVEY VERIFICATION

Thickness Tolerance
Clay Anchor: -0.0 foot, + 2 feet

Pond 3S Construction Survey Tabulation

Verification Survey - Clay Anchor (Typical)

Clay Verification Point	Grid No	Northing	Easting	Elevation	Clay Thickness, ft (FIN1 - SG2) 4' min. rq'd, built to 5' nominal
SG1	8042	862,451.03	2,031,699.53	979.0	5.0
SG2	8043	862,430.91	2,031,700.38	979.0	
SG3	8002	862,423.80	2,031,699.50	984.0	
FIN1	8178	862,436.85	2,031,699.34	984.0	
FIN2	8179	862,421.86	2,031,700.39	984.0	
SG1	8045	862,448.56	2,031,650.72	979.1	4.9
SG2	8044	862,428.31	2,031,650.56	979.1	
SG3	8081	862,420.87	2,031,646.27	984.0	
FIN1	8177	862,433.96	2,031,648.30	984.0	
FIN2	8176	862,419.12	2,031,649.59	984.1	
SG1	8046	862,446.36	2,031,599.58	979.1	5.0
SG2	8047	862,426.06	2,031,601.17	979.1	
SG3	8001	862,418.97	2,031,599.38	984.0	
FIN1	8174	862,431.36	2,031,599.42	984.1	
FIN2	8175	862,416.87	2,031,600.19	984.0	
SG1	8049	862,443.82	2,031,548.30	978.9	5.0
SG2	8048	862,423.50	2,031,549.22	979.0	
SG3	8080	862,417.01	2,031,542.60	984.0	
FIN1	8173	862,428.62	2,031,547.86	984.0	
FIN2	8172	862,413.17	2,031,549.53	984.1	
SG1	8050	862,441.23	2,031,500.26	978.9	5.0
SG2	8051	862,421.56	2,031,500.06	979.0	
SG3	8000	862,414.56	2,031,500.57	984.0	
FIN1	8170	862,425.62	2,031,499.52	984.0	
FIN2	8171	862,410.81	2,031,500.93	984.1	



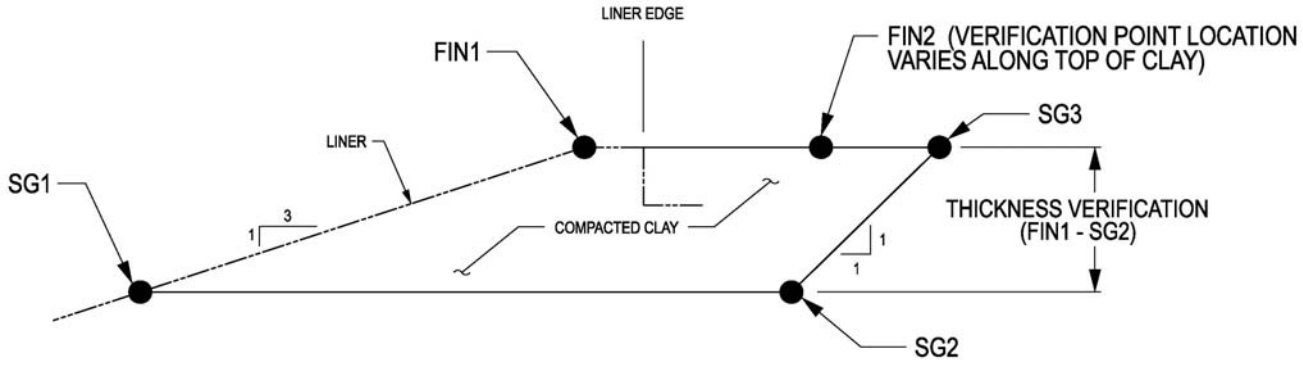
SECTION: CLAY ANCHOR SURVEY VERIFICATION

Thickness Tolerance
Clay Anchor: -0.0 foot, + 2 feet

Pond 3S Construction Survey Tabulation

Verification Survey - Clay Anchor (Typical)

Clay Verification Point	Grid No	Northing	Easting	Elevation	Clay Thickness, ft (FIN1 - SG2) 4' min. rq'd, built to 5' nominal
SG1	8053	862,438.40	2,031,449.67	979.0	5.0
SG2	8052	862,418.93	2,031,450.63	979.0	
SG3	8079	862,411.58	2,031,452.40	984.0	
FIN1	8169	862,423.13	2,031,447.61	984.0	
FIN2	8168	862,407.42	2,031,449.45	984.2	
SG1	8054	862,436.41	2,031,399.95	978.8	5.2
SG2	8090	862,415.56	2,031,399.30	978.8	
SG3	8114	862,408.89	2,031,400.20	983.8	
FIN1	8166	862,420.59	2,031,399.54	984.0	
FIN2	8167	862,405.78	2,031,400.89	984.3	
SG1	8057	862,433.18	2,031,347.26	978.9	5.1
SG2	8056	862,413.89	2,031,348.13	978.9	
SG3	8078	862,406.44	2,031,349.09	983.8	
FIN1	8165	862,418.24	2,031,348.15	984.0	
FIN2	8164	862,404.14	2,031,349.69	984.1	
SG1	8058	862,430.74	2,031,300.18	978.8	5.0
SG2	8093	862,410.69	2,031,299.33	978.9	
SG3	8115	862,403.31	2,031,299.38	983.8	
FIN1	8162	862,416.19	2,031,299.44	983.9	
FIN2	8163	862,402.33	2,031,300.17	984.1	
SG1	8061	862,427.55	2,031,246.41	978.8	5.1
SG2	8060	862,408.37	2,031,247.32	978.9	
SG3	8077	862,401.31	2,031,247.77	983.9	
FIN1	8161	862,412.80	2,031,247.28	984.0	
FIN2	8160	862,399.14	2,031,249.18	984.0	



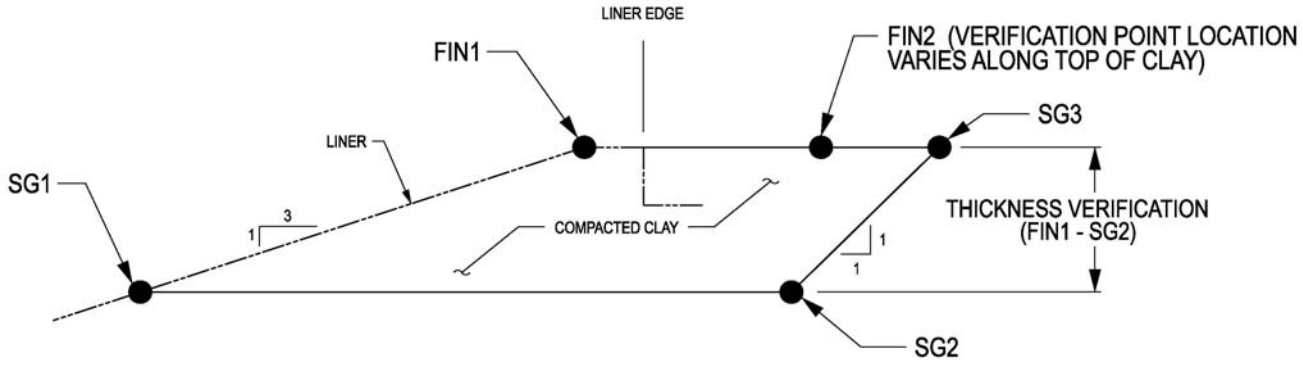
SECTION: CLAY ANCHOR SURVEY VERIFICATION

Thickness Tolerance
Clay Anchor: -0.0 foot, + 2 feet

Pond 3S Construction Survey Tabulation

Verification Survey - Clay Anchor (Typical)

Clay Verification Point	Grid No	Northing	Easting	Elevation	Clay Thickness, ft (FIN1 - SG2) 4' min. rq'd, built to 5' nominal
SG1	8095	862,425.61	2,031,199.32	978.9	5.0
SG2	8094	862,405.28	2,031,199.32	979.0	
SG3	8116	862,398.20	2,031,199.33	983.8	
FIN1	8158	862,410.23	2,031,199.50	984.0	
FIN2	8159	862,396.71	2,031,201.08	984.0	
SG1	8062	862,422.40	2,031,152.85	979.1	5.1
SG2	8063	862,402.71	2,031,154.36	978.9	
SG3	8076	862,394.97	2,031,155.01	984.0	
FIN1	8157	862,408.04	2,031,148.04	984.0	
FIN2	8156	862,393.63	2,031,149.55	984.1	
SG1	8096	862,420.31	2,031,099.51	979.0	5.3
SG2	8097	862,400.17	2,031,100.48	978.8	
SG3	8117	862,393.56	2,031,100.86	983.8	
FIN1	8154	862,405.53	2,031,099.29	984.1	
FIN2	8155	862,390.47	2,031,100.54	984.0	
SG1	8065	862,416.75	2,031,048.43	979.1	4.9
SG2	8064	862,397.22	2,031,049.36	979.1	
SG3	8075	862,389.54	2,031,050.59	984.0	
FIN1	8153	862,402.77	2,031,048.55	984.0	
FIN2	8152	862,389.47	2,031,049.84	984.0	
SG1	8099	862,414.77	2,030,999.38	979.0	5.0
SG2	8098	862,394.66	2,030,999.44	979.0	
SG3	8118	862,387.56	2,030,999.55	983.8	
FIN1	8150	862,400.28	2,030,999.34	984.0	
FIN2	8151	862,388.37	2,031,000.30	984.0	



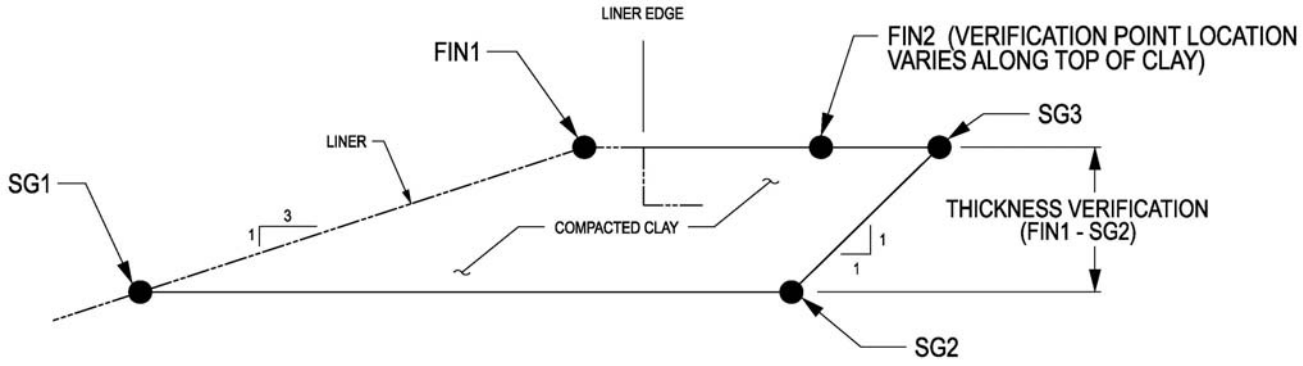
SECTION: CLAY ANCHOR SURVEY VERIFICATION

Thickness Tolerance
Clay Anchor: -0.0 foot, + 2 feet

Pond 3S Construction Survey Tabulation

Verification Survey - Clay Anchor (Typical)

Clay Verification Point	Grid No	Northing	Easting	Elevation	Clay Thickness, ft (FIN1 - SG2) 4' min. rq'd, built to 5' nominal
SG1	8100	862,412.01	2,030,941.30	979.0	5.0
SG2	8101	862,392.42	2,030,940.12	979.1	
SG3	8119	862,385.33	2,030,938.48	983.8	
FIN1	8149	862,397.16	2,030,939.18	984.1	
FIN2	8148	862,385.94	2,030,938.97	984.3	
SG1	8103	862,415.41	2,030,899.63	982.1	5.1
SG2	8102	862,394.58	2,030,899.56	982.1	
SG3	8120	862,387.82	2,030,899.57	987.0	
FIN1	8146	862,399.89	2,030,899.51	987.2	
FIN2	8147	862,387.79	2,030,899.76	987.2	
SG1	8066	862,419.47	2,030,849.75	985.8	5.0
SG2	8067	862,399.08	2,030,847.97	986.3	
SG3	8074	862,391.96	2,030,846.76	991.0	
FIN1	8145	862,403.57	2,030,848.52	991.3	
FIN2	8144	862,391.25	2,030,849.30	991.3	
SG1	8104	862,423.35	2,030,800.05	989.9	5.2
SG2	8105	862,403.27	2,030,799.27	990.1	
SG3	8121	862,396.28	2,030,799.42	994.9	
FIN1	8142	862,408.27	2,030,799.20	995.3	
FIN2	8143	862,395.21	2,030,798.49	995.5	
SG1	8069	862,426.38	2,030,756.87	993.6	5.1
SG2	8068	862,406.87	2,030,754.27	993.9	
SG3	8073	862,399.84	2,030,754.41	998.6	
FIN1	8141	862,412.77	2,030,750.02	999.0	
FIN2	8140	862,399.84	2,030,749.68	999.3	



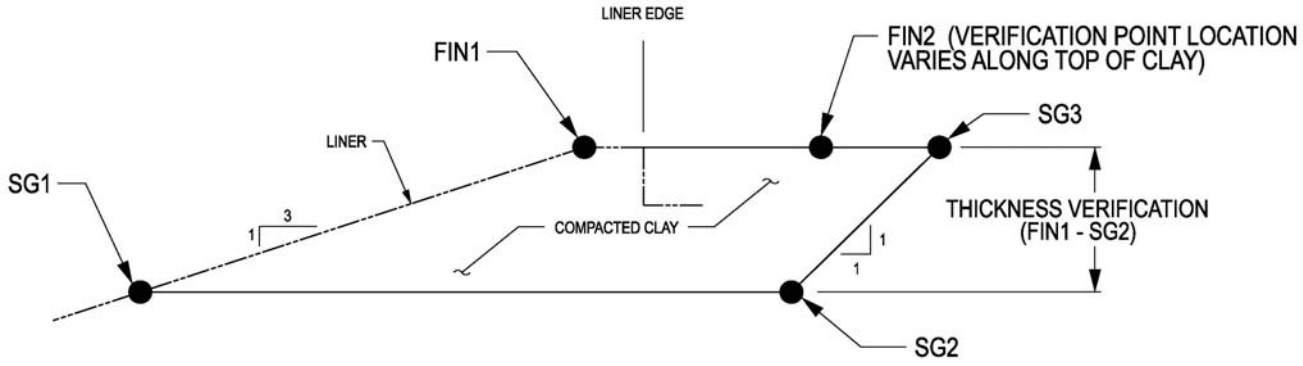
SECTION: CLAY ANCHOR SURVEY VERIFICATION

Thickness Tolerance
Clay Anchor: -0.0 foot, + 2 feet

Pond 3S Construction Survey Tabulation

Verification Survey - Clay Anchor (Typical)

Clay Verification Point	Grid No	Northing	Easting	Elevation	Clay Thickness, ft (FIN1 - SG2) 4' min. rq'd, built to 5' nominal
SG1	8107	862,431.45	2,030,699.91	998.1	5.2
SG2	8106	862,410.98	2,030,699.14	998.2	
SG3	8122	862,404.88	2,030,700.21	1003.0	
FIN1	8138	862,416.19	2,030,699.44	1003.4	
FIN2	8139	862,404.10	2,030,698.78	1003.4	
SG1	8070	862,434.53	2,030,666.66	1000.9	5.1
SG2	8071	862,414.07	2,030,665.21	1000.9	
SG3	8072	862,407.14	2,030,664.70	1005.7	
FIN1	8211	862,419.44	2,030,665.29	1006.0	
FIN2	8212	862,407.98	2,030,664.90	1006.0	
SG1	8243	863,619.05	2,031,972.30	989.2	5.0
SG2	8244	863,617.11	2,031,994.54	989.8	
SG3	Not Surveyed			0.0	
FIN1	8297	863,618.17	2,031,991.33	994.8	
FIN2	8299	863,617.24	2,032,003.29	995.0	
SG1	8242	863,592.08	2,031,976.87	988.1	5.0
SG2	8241	863,592.01	2,031,998.06	988.0	
SG3	Not Surveyed			0.0	
FIN1	8294	863,592.01	2,031,997.97	993.0	
FIN2	8295	863,592.57	2,032,005.39	993.0	
SG1	8239	863,542.31	2,031,983.74	984.1	5.0
SG2	8240	863,541.99	2,032,004.09	983.8	
SG3	8246	863,542.07	2,032,012.48	990.3	
FIN1	8291	863,541.49	2,031,999.14	988.8	
FIN2	8293	863,542.78	2,032,010.46	989.0	



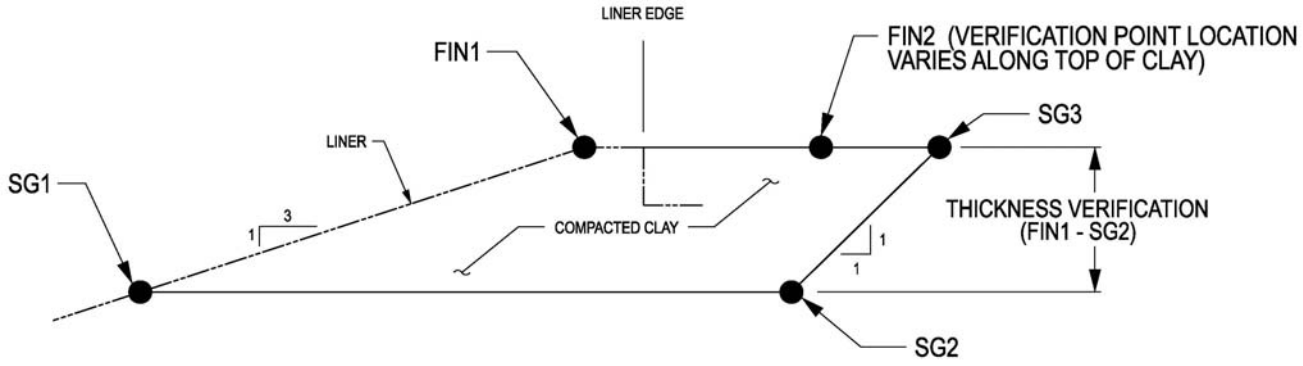
SECTION: CLAY ANCHOR SURVEY VERIFICATION

Thickness Tolerance
Clay Anchor: -0.0 foot, + 2 feet

Pond 3S Construction Survey Tabulation

Verification Survey - Clay Anchor (Typical)

Clay Verification Point	Grid No	Northing	Easting	Elevation	Clay Thickness, ft (FIN1 - SG2) 4' min. rq'd, built to 5' nominal
SG1	8238	863,479.23	2,031,990.95	979.1	5.0
SG2	8237	863,481.91	2,032,009.80	979.2	
SG3	8247	863,481.66	2,032,018.48	984.7	
FIN1	8290	863,481.17	2,032,006.22	984.2	
FIN2	8289	863,482.02	2,032,018.11	984.2	
SG1	8235	863,442.14	2,031,991.08	979.2	5.0
SG2	8236	863,441.98	2,032,010.88	979.1	
SG3	8248	863,441.71	2,032,018.41	984.2	
FIN1	8285	863,441.79	2,032,006.42	984.1	
FIN2	8286	863,442.15	2,032,010.88	984.1	
SG1	8234	863,392.00	2,031,991.80	979.0	5.2
SG2	8233	863,392.19	2,032,010.70	979.1	
SG3	8249	863,391.84	2,032,018.29	984.3	
FIN1	8284	863,391.95	2,032,006.59	984.3	
FIN2	8283	863,392.05	2,032,018.22	984.2	
SG1	8231	863,342.06	2,031,991.47	979.1	5.1
SG2	8232	863,342.13	2,032,011.06	979.2	
SG3	8251	863,341.89	2,032,018.56	984.1	
FIN1	8279	863,341.76	2,032,006.77	984.3	
FIN2	8281	863,341.88	2,032,019.10	984.2	
SG1	8230	863,292.36	2,031,991.38	978.9	5.0
SG2	8229	863,292.20	2,032,010.88	979.2	
SG3	8252	863,291.78	2,032,018.79	984.4	
FIN1	8278	863,292.21	2,032,005.96	984.2	
FIN2	8277	863,291.92	2,032,019.27	984.4	



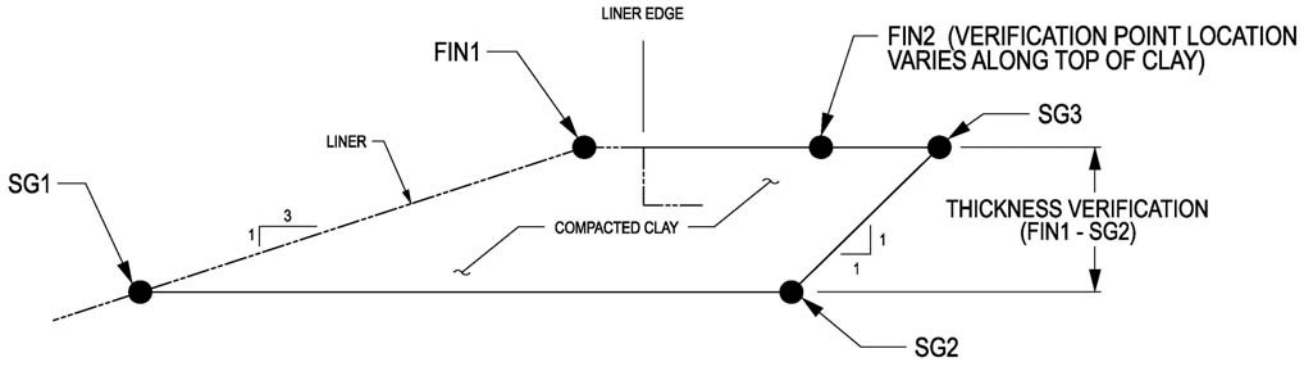
SECTION: CLAY ANCHOR SURVEY VERIFICATION

Thickness Tolerance
Clay Anchor: -0.0 foot, + 2 feet

Pond 3S Construction Survey Tabulation

Verification Survey - Clay Anchor (Typical)

Clay Verification Point	Grid No	Northing	Easting	Elevation	Clay Thickness, ft (FIN1 - SG2) 4' min. rq'd, built to 5' nominal
SG1	8227	863,242.16	2,031,991.60	979.2	5.0
SG2	8228	863,241.90	2,032,011.19	979.2	
SG3	8253	863,242.39	2,032,018.87	984.3	
FIN1	8268	863,242.38	2,032,006.54	984.2	
FIN2	8274	863,242.08	2,032,011.05	984.3	
SG1	8226	863,192.04	2,031,991.16	979.1	5.0
SG2	8225	863,192.15	2,032,011.24	979.2	
SG3	8254	863,191.70	2,032,018.32	984.1	
FIN1	8267	863,192.15	2,032,006.52	984.2	
FIN2	8270	863,192.26	2,032,011.25	984.2	
SG1	8223	863,142.01	2,031,991.00	979.1	5.1
SG2	8224	863,142.07	2,032,010.98	979.1	
SG3	8255	863,142.07	2,032,018.50	984.3	
FIN1	8264	863,141.76	2,032,006.45	984.2	
FIN2	8271	863,142.21	2,032,010.93	984.1	
SG1	8222	863,092.13	2,031,991.72	979.2	5.0
SG2	8221	863,091.58	2,032,011.74	979.2	
SG3	8256	863,092.10	2,032,019.32	984.2	
FIN1	8263	863,092.14	2,032,006.58	984.2	
FIN2	8272	863,091.98	2,032,011.74	984.3	
SG1	8219	863,042.22	2,031,991.68	979.1	5.2
SG2	8220	863,042.22	2,032,011.38	979.0	
SG3	8257	863,041.94	2,032,018.80	984.4	
FIN1	8262	863,041.66	2,032,006.47	984.2	
FIN2	8261	863,042.03	2,032,018.40	984.1	



SECTION: CLAY ANCHOR SURVEY VERIFICATION

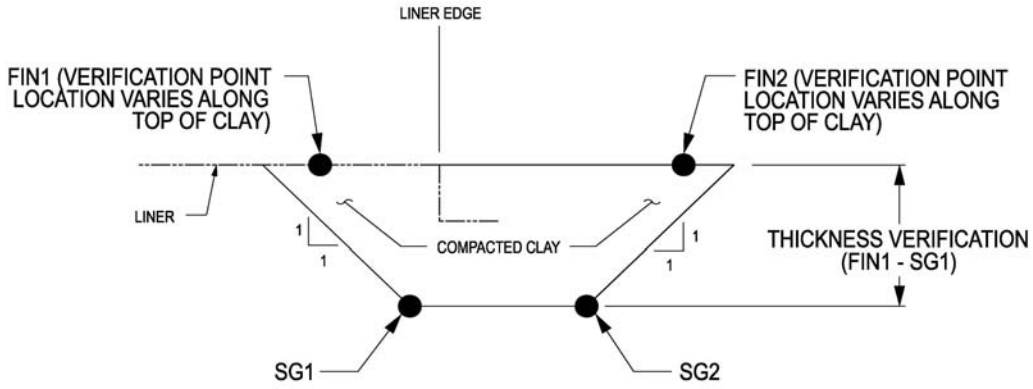
Thickness Tolerance
Clay Anchor: -0.0 foot, + 2 feet

Pond 3S Construction Survey Tabulation

Verification Survey - Clay Anchor Southwest Corner

Clay Verification Point	Grid No	Northing	Easting	Elevation	Clay Thickness, ft (FIN1 - SG1) 4' min. rq'd, built to 5' nominal
SG1	8126	862,422.89	2,030,608.74	1004.9	5.1
SG2	8125	862,414.08	2,030,607.60	1005.4	
FIN1	8127	862,430.47	2,030,610.37	1010.0	
FIN2	8124	862,407.26	2,030,609.17	1010.1	

SG1	8129	862,421.36	2,030,566.41	1005.0	5.1
SG2	8130	862,411.04	2,030,565.84	1005.2	
FIN1	8215	862,423.75	2,030,566.10	1010.1	
FIN2	8216	862,410.03	2,030,566.17	1010.4	



SECTION: CLAY ANCHOR AT SW CORNER SURVEY VERIFICATION

Thickness Tolerance
Clay Anchor: -0.0 foot, + 2 feet

Pond 3S Construction Survey Tabulation

Verification Survey-Liner Connection/Edge of Liner

	As-built Liner Limits			Description
Grid No.	Northing	Easting	Elevation	
6000	863,671.27	2,031,743.64	960.29	Ex. Liner Connection to Pond 3N
6001	863,671.08	2,031,735.70	960.19	Ex. Liner Connection to Pond 3N
6002	863,712.78	2,031,734.28	974.20	Ex. Liner Connection to Pond 3N
6003	863,754.18	2,031,735.26	987.74	Ex. Liner Connection to Pond 3N
6004	863,775.31	2,031,735.78	994.98	Ex. Liner Connection to Pond 3N
6005	863,781.98	2,031,739.74	995.15	Ex. Liner Connection to Pond 3N
6006	863,784.87	2,031,735.45	995.10	Ex. Liner Connection to Pond 3N
6007	863,782.50	2,031,733.62	995.04	Ex. Liner Connection to Pond 3N
6008	863,782.62	2,031,680.61	995.11	Ex. Liner Connection to Pond 3N
6009	863,782.49	2,031,625.69	995.18	Ex. Liner Connection to Pond 3N
6010	863,782.36	2,031,571.74	995.15	Ex. Liner Connection to Pond 3N
6011	863,782.43	2,031,518.51	995.09	Ex. Liner Connection to Pond 3N
6012	863,782.57	2,031,464.20	995.05	Ex. Liner Connection to Pond 3N
6013	863,782.97	2,031,408.46	994.98	Ex. Liner Connection to Pond 3N
6014	863,783.50	2,031,349.42	995.09	Ex. Liner Connection to Pond 3N
6015	863,783.83	2,031,297.09	995.03	Ex. Liner Connection to Pond 3N
6016	863,783.29	2,031,245.85	995.03	Ex. Liner Connection to Pond 3N
6017	863,782.28	2,031,196.47	995.086	Ex. Liner Connection to Pond 3N
6018	863,782.34	2,031,142.19	995.173	Ex. Liner Connection to Pond 3N
6019	863,782.54	2,031,088.34	995.117	Ex. Liner Connection to Pond 3N
6020	863,782.62	2,031,037.59	995.141	Ex. Liner Connection to Pond 3N
6021	863,782.44	2,030,982.90	995.239	Ex. Liner Connection to Pond 3N
6022	863,782.42	2,030,930.18	995.209	Ex. Liner Connection to Pond 3N
6023	863,782.10	2,030,880.25	995.154	Ex. Liner Connection to Pond 3N
6024	863,781.89	2,030,835.68	995.276	Ex. Liner Connection to Pond 3N
6025	863,782.15	2,030,803.16	995.323	Ex. Liner Connection to Pond 3N
6026	863,772.50	2,030,805.42	994.169	Ex. Liner Connection to Pond 3N
6027	863,735.22	2,030,806.12	981.712	Ex. Liner Connection to Pond 3N
6028	863,695.89	2,030,806.65	968.544	Ex. Liner Connection to Pond 3N
6029	863,671.35	2,030,807.04	960.368	Ex. Liner Connection to Pond 3N
6030	863,671.45	2,030,765.51	960.617	Ex. Liner Connection to Pond 3N
6031	863,656.76	2,030,764.67	960.62	Ex. Liner Connection to Pond 3N
6032	863,656.27	2,030,723.63	974.056	Ex. Liner Connection to Pond 3N

Pond 3S Construction Survey Tabulation

Verification Survey-Liner Connection/Edge of Liner

	As-built Liner Limits			Description
Grid No.	Northing	Easting	Elevation	
6033	863,656.05	2,030,680.96	988.209	Ex. Liner Connection to Pond 3N
6034	863,656.27	2,030,635.92	1003.277	Ex. Liner Connection to Pond 3N
6035	863,656.34	2,030,614.62	1010.625	Ex. Liner Connection to Pond 3N
6036	863,656.09	2,030,606.40	1010.046	Ex. Liner Connection to Pond 3N
6037	863,606.14	2,030,606.29	1010.037	Edge of Pond 3S Liner
6038	863,559.81	2,030,606.45	1010.049	Edge of Pond 3S Liner
6039	863,508.87	2,030,606.95	1010.121	Edge of Pond 3S Liner
6040	863,461.33	2,030,606.87	1010.176	Edge of Pond 3S Liner
6041	863,410.46	2,030,607.09	1010.269	Edge of Pond 3S Liner
6042	863,360.92	2,030,606.83	1010.111	Edge of Pond 3S Liner
6043	863,313.36	2,030,606.74	1010.147	Edge of Pond 3S Liner
6044	863,262.66	2,030,607.22	1010.342	Edge of Pond 3S Liner
6045	863,212.21	2,030,607.20	1010.017	Edge of Pond 3S Liner
6046	863,164.57	2,030,607.21	1009.908	Edge of Pond 3S Liner
6047	863,112.59	2,030,607.00	1010.251	Edge of Pond 3S Liner
6048	863,060.28	2,030,606.75	1010.094	Edge of Pond 3S Liner
6049	863,022.85	2,030,606.59	1009.958	Edge of Pond 3S Liner
6050	862,972.65	2,030,607.17	1010.089	Edge of Pond 3S Liner
6051	862,924.62	2,030,607.15	1010.192	Edge of Pond 3S Liner
6052	862,876.01	2,030,607.01	1010.244	Edge of Pond 3S Liner
6053	862,825.97	2,030,606.97	1010.045	Edge of Pond 3S Liner
6054	862,783.92	2,030,606.72	1009.964	Edge of Pond 3S Liner
6055	862,743.51	2,030,606.79	1010.129	Edge of Pond 3S Liner
6056	862,687.32	2,030,606.33	1010.12	Edge of Pond 3S Liner
6057	862,642.15	2,030,606.23	1010.009	Edge of Pond 3S Liner
6058	862,588.95	2,030,607.07	1010.256	Edge of Pond 3S Liner
6059	862,541.93	2,030,606.42	1010.095	Edge of Pond 3S Liner
6060	862,520.39	2,030,606.29	1010.019	Edge of Pond 3S Liner
6061	862,491.45	2,030,599.88	1009.792	Edge of Pond 3S Liner
6062	862,463.09	2,030,589.47	1009.844	Edge of Pond 3S Liner
6063	862,438.67	2,030,575.05	1009.843	Edge of Pond 3S Liner
6064	862,419.06	2,030,550.60	1010.168	Edge of Pond 3S Liner
6065	862,420.28	2,030,586.19	1010.027	Edge of Pond 3S Liner

Pond 3S Construction Survey Tabulation

Verification Survey-Liner Connection/Edge of Liner

	As-built Liner Limits			Description
Grid No.	Northing	Easting	Elevation	
6066	862,421.41	2,030,617.90	1009.849	Edge of Pond 3S Liner
6067	862,416.54	2,030,673.83	1005.207	Edge of Pond 3S Liner
6068	862,411.93	2,030,727.14	1001.074	Edge of Pond 3S Liner
6069	862,408.41	2,030,779.98	996.712	Edge of Pond 3S Liner
6070	862,403.91	2,030,832.09	992.726	Edge of Pond 3S Liner
6071	862,400.42	2,030,884.70	988.352	Edge of Pond 3S Liner
6072	862,394.88	2,030,934.96	984.284	Edge of Pond 3S Liner
6073	862,397.64	2,030,989.29	984.072	Edge of Pond 3S Liner
6074	862,401.16	2,031,041.59	984.067	Edge of Pond 3S Liner
6075	862,403.57	2,031,093.78	984.041	Edge of Pond 3S Liner
6076	862,405.34	2,031,139.65	983.99	Edge of Pond 3S Liner
6077	862,408.14	2,031,188.37	983.923	Edge of Pond 3S Liner
6078	862,410.43	2,031,240.84	984.078	Edge of Pond 3S Liner
6079	862,414.23	2,031,305.57	984.156	Edge of Pond 3S Liner
6080	862,416.60	2,031,356.75	984.023	Edge of Pond 3S Liner
6081	862,419.26	2,031,408.72	983.979	Edge of Pond 3S Liner
6082	862,421.84	2,031,460.79	984.094	Edge of Pond 3S Liner
6083	862,424.77	2,031,512.91	984.111	Edge of Pond 3S Liner
6084	862,428.14	2,031,564.98	984.125	Edge of Pond 3S Liner
6085	862,430.52	2,031,617.05	984.047	Edge of Pond 3S Liner
6086	862,433.31	2,031,668.41	984.013	Edge of Pond 3S Liner
6087	862,436.14	2,031,719.08	983.975	Edge of Pond 3S Liner
6088	862,438.02	2,031,768.31	984.105	Edge of Pond 3S Liner
6089	862,440.37	2,031,814.21	984.17	Edge of Pond 3S Liner
6090	862,443.44	2,031,865.08	984.118	Edge of Pond 3S Liner
6091	862,445.87	2,031,908.60	984.185	Edge of Pond 3S Liner
6092	862,469.17	2,031,934.62	984.052	Edge of Pond 3S Liner
6093	862,506.71	2,031,971.56	983.924	Edge of Pond 3S Liner
6094	862,541.46	2,032,006.19	984.028	Edge of Pond 3S Liner
6095	862,592.81	2,032,007.80	983.965	Edge of Pond 3S Liner
6096	862,640.41	2,032,007.82	984.024	Edge of Pond 3S Liner
6097	862,691.60	2,032,008.00	983.997	Edge of Pond 3S Liner
6098	862,745.61	2,032,008.20	984.039	Edge of Pond 3S Liner

Pond 3S Construction Survey Tabulation

Verification Survey-Liner Connection/Edge of Liner

	As-built Liner Limits			Description
Grid No.	Northing	Easting	Elevation	
6099	862,791.75	2,032,008.43	984.07	Edge of Pond 3S Liner
6100	862,860.84	2,032,007.94	984.03	Edge of Pond 3S Liner
6101	862,913.40	2,032,008.46	984.138	Edge of Pond 3S Liner
6102	862,966.36	2,032,008.47	984.041	Edge of Pond 3S Liner
6103	863,015.92	2,032,008.18	984.038	Edge of Pond 3S Liner
6104	863,071.39	2,032,008.47	984.159	Edge of Pond 3S Liner
6105	863,123.80	2,032,008.66	984.006	Edge of Pond 3S Liner
6106	863,176.34	2,032,008.91	984.241	Edge of Pond 3S Liner
6107	863,231.29	2,032,008.66	984.203	Edge of Pond 3S Liner
6108	863,283.39	2,032,008.76	984.203	Edge of Pond 3S Liner
6109	863,333.66	2,032,008.67	984.134	Edge of Pond 3S Liner
6110	863,384.94	2,032,009.15	984.034	Edge of Pond 3S Liner
6111	863,435.59	2,032,008.54	984.017	Edge of Pond 3S Liner
6112	863,476.58	2,032,007.87	983.999	Edge of Pond 3S Liner
6113	863,521.59	2,032,003.65	986.988	Edge of Pond 3S Liner
6114	863,572.51	2,031,997.17	991.197	Edge of Pond 3S Liner
6115	863,609.00	2,031,992.94	994.23	Edge of Pond 3S Liner
6116	863,626.04	2,031,992.45	995.26	Edge of Pond 3S Liner
6117	863,636.35	2,031,991.33	994.989	Edge of Pond 3S Liner
6118	863,634.55	2,031,960.89	985.119	Edge of Pond 3S Liner
6119	863,632.48	2,031,927.72	974.444	Edge of Pond 3S Liner
6120	863,630.53	2,031,890.34	961.807	Edge of Pond 3S Liner
6121	863,630.06	2,031,879.20	960.206	Edge of Pond 3S Liner
6122	863,654.06	2,031,854.42	960.053	Edge of Pond 3S Liner
6123	863,672.66	2,031,836.49	960.599	Edge of Pond 3S Liner
6124	863,671.72	2,031,791.87	960.234	Edge of Pond 3S Liner
6125	863,671.56	2,031,767.04	960.191	Edge of Pond 3S Liner

Sherco Pond 3S Construction Survey Tabulation

Verification Survey- Pipes

As-built Pipe Survey				
Grid No.	**Northing**	**Easting**	**Elevation**	**Location Description**
7000	863,206.89	2,030,665.8	993.30	Top of Existing Pond 2 Incline Well
7001	863,207.06	2,030,662.1	992.34	Base of Existing Pond 2 Incline Well
7002	862,857.16	2,030,666.0	993.98	Top of Existing Pond 2 Incline Well
7003	862,857.53	2,030,661.8	992.94	Base of Existing Pond 2 Incline Well
7004	863,164.75	2,030,835.4	939.739	TOP OF PIPE
7005	863,189.46	2,030,832.7	939.815	TOP OF PIPE
7006	863,244.47	2,030,831.8	939.578	TOP OF PIPE
7007	863,297.31	2,030,831.4	939.551	TOP OF PIPE
7008	863,349.54	2,030,832.0	939.527	TOP OF PIPE
7009	863,412.91	2,030,832.1	939.868	TOP OF PIPE
7010	863,481.48	2,030,832.3	939.897	CROSS
7011	863,544.54	2,030,831.2	939.66	TOP OF PIPE
7012	863,606.01	2,030,833.1	940.225	BEND
7013	863,615.56	2,030,825.2	942.784	TOP OF PIPE
7014	863,631.83	2,030,802.6	949.112	TOP OF PIPE
7015	863,644.66	2,030,782.3	955.549	TOP OF PIPE
7016	863,650.37	2,030,758.5	963.681	TOP OF PIPE
7017	863,652.80	2,030,731.9	972.577	TOP OF PIPE
7018	863,651.07	2,030,680.5	989.646	TOP OF PIPE
7019	863,649.31	2,030,622.7	1008.959	TOP OF PIPE
7020	863,648.18	2,030,614.8	1011.095	TOP OF PIPE
7021	863,487.17	2,030,609.2	1012.299	TOP OF PIPE
7022	863,486.48	2,030,616.1	1011.148	TOP OF PIPE
7023	863,483.18	2,030,666.8	994.176	TOP OF PIPE
7024	863,481.59	2,030,740.4	969.428	TOP OF PIPE
7025	863,481.43	2,030,816.4	944.459	TOP OF PIPE
7026	863,481.23	2,030,830.3	939.993	TOP OF PIPE
7027	863,481.39	2,030,847.4	939.69	TOP OF PIPE
7028	863,478.26	2,030,885.1	940.466	TOP OF PIPE
7029	863,479.34	2,030,925.3	941.291	TOP OF PIPE
7030	863,478.32	2,031,041.8	943.522	TOP OF PIPE
7031	863,479.21	2,031,091.5	944.577	TOP OF PIPE
7032	863,479.44	2,031,130.6	945.333	TOP OF PIPE
7033	863,481.29	2,031,172.8	946.169	TOP OF PIPE
7034	863,480.48	2,031,261.4	947.788	TOP OF PIPE

Sherco Pond 3S Construction Survey Tabulation

Verification Survey- Pipes

As-built Pipe Survey				
Grid No.	**Northing**	**Easting**	**Elevation**	**Location Description**
7035	863,480.90	2,031,304.7	948.297	TOP OF PIPE
7036	863,482.63	2,031,341.4	947.54	TOP OF PIPE
7037	863,132.06	2,030,832.5	939.028	TOP OF PIPE
7038	863,093.06	2,030,832.4	939.662	TOP OF PIPE
7039	863,039.55	2,030,832.6	939.632	TOP OF PIPE
7040	862,940.26	2,030,832.1	939.519	TOP OF PIPE
7041	862,847.36	2,030,832.1	939.718	TOP OF PIPE
7042	862,820.52	2,030,831.4	939.04	TOP OF PIPE
7043	863,459.38	2,030,862.8	942.128	Top of 12in CMP Culvert
7044	863,499.31	2,030,862.9	941.831	Top of 12in CMP Culvert
7045	862,816.27	2,030,843.0	939.394	TOP OF PIPE
7046	862,815.96	2,030,868.1	939.873	TOP OF PIPE
7047	862,815.85	2,030,902.0	940.566	TOP OF PIPE
7048	862,816.20	2,031,003.2	942.474	TOP OF PIPE
7049	862,815.49	2,031,108.2	944.664	TOP OF PIPE
7050	862,816.37	2,031,208.5	946.698	TOP OF PIPE
7051	862,815.83	2,031,308.8	948.25	TOP OF PIPE
7052	862,816.42	2,031,372.6	947.035	TOP OF PIPE
7053	863,141.17	2,031,398.7	939.116	TOP OF PIPE
7054	863,142.85	2,031,357.6	939.159	TOP OF PIPE
7055	863,144.59	2,031,314.1	939.22	TOP OF PIPE
7056	863,142.07	2,031,212.7	939.177	TOP OF PIPE
7057	863,143.14	2,031,112.6	939.067	TOP OF PIPE
7058	863,143.28	2,031,011.0	939.063	TOP OF PIPE
7059	863,142.03	2,030,931.1	939.172	TOP OF PIPE
7060	863,142.00	2,030,897.3	939.317	TOP OF PIPE
7061	863,141.53	2,030,847.3	939.29	TOP OF PIPE
7062	862,643.14	2,030,831.9	943.238	BEND
7063	862,624.28	2,030,822.6	941.676	TOP OF PIPE
7064	862,614.74	2,030,803.9	948.37	TOP OF PIPE
7065	862,613.42	2,030,775.8	957.853	TOP OF PIPE
7066	862,613.24	2,030,743.9	967.742	TOP OF PIPE
7067	862,608.90	2,030,677.4	990.476	TOP OF PIPE
7068	862,605.99	2,030,633.9	1004.92	TOP OF PIPE
7069	862,605.71	2,030,612.9	1011.439	TOP OF PIPE

Sherco Pond 3S Construction Survey Tabulation

Verification Survey- Pipes

As-built Pipe Survey				
Grid No.	**Northing**	**Easting**	**Elevation**	**Location Description**
7070	862,820.64	2,030,615.1	1010.753	TOP OF PIPE
7071	862,820.39	2,030,656.9	997.37	TOP OF PIPE
7072	862,820.99	2,030,704.7	981.232	TOP OF PIPE
7073	862,820.42	2,030,753.7	964.869	TOP OF PIPE
7074	862,819.23	2,030,805.5	947.48	TOP OF PIPE
7075	862,818.89	2,030,824.0	941.948	TOP OF PIPE
7076	862,818.43	2,030,834.2	941.954	CROSS
7077	862,816.09	2,031,370.7	947.12	TOP OF PIPE
7078	862,816.16	2,031,423.1	946.13	TOP OF PIPE
7079	862,815.99	2,031,475.8	944.822	TOP OF PIPE
7080	862,816.68	2,031,528.2	943.799	TOP OF PIPE
7081	862,818.21	2,031,580.5	942.663	TOP OF PIPE
7082	862,818.32	2,031,626.7	942.111	TOP OF PIPE
7083	862,817.73	2,031,673.2	941.223	TOP OF PIPE
7084	862,817.67	2,031,701.6	940.747	TOP OF PIPE
7085	863,460.02	2,031,774.3	940.957	TOP OF PIPE
7086	863,460.83	2,031,769.6	939.922	BEND
7087	863,461.13	2,031,767.9	939.993	CROSS
7088	863,465.24	2,031,737.8	939.833	TOP OF PIPE
7089	863,465.79	2,031,689.1	940.877	TOP OF PIPE
7090	863,467.01	2,031,641.2	941.684	TOP OF PIPE
7091	863,467.61	2,031,593.1	942.775	TOP OF PIPE
7092	863,469.65	2,031,548.5	943.521	TOP OF PIPE
7093	863,470.97	2,031,503.2	944.383	TOP OF PIPE
7094	863,471.97	2,031,450.9	945.579	TOP OF PIPE
7095	863,473.43	2,031,423.1	945.939	TOP OF PIPE
7096	863,480.36	2,031,344.8	947.424	TOP OF PIPE
7097	863,481.01	2,031,301.7	948.235	TOP OF PIPE
7098	863,627.19	2,031,857.1	964.164	TOP OF PIPE
7099	863,627.57	2,031,842.0	963.259	TOP OF PIPE
7100	863,627.43	2,031,825.2	958.687	TOP OF PIPE
7101	863,623.25	2,031,803.9	951.146	TOP OF PIPE
7102	863,617.54	2,031,785.6	944.96	TOP OF PIPE
7103	863,609.53	2,031,774.5	941.745	TOP OF PIPE
7104	863,599.00	2,031,767.4	0	TOP OF ROCK

Sherco Pond 3S Construction Survey Tabulation

Verification Survey- Pipes

As-built Pipe Survey				
Grid No.	**Northing**	**Easting**	**Elevation**	**Location Description**
7105	863,571.93	2,031,766.8	0	TOP OF PIPE
7107	863,451.12	2,031,768.1	0	TOP OF PIPE
7108	863,416.17	2,031,767.8	0	TOP OF PIPE
7109	863,390.10	2,031,769.7	0	TOP OF PIPE
7110	863,350.93	2,031,769.4	0	TOP OF PIPE
7111	863,316.33	2,031,768.8	939.917	TOP OF PIPE
7112	863,267.75	2,031,769.0	939.921	TOP OF PIPE
7113	863,212.08	2,031,768.7	939.999	TOP OF PIPE
7115	863,191.42	2,031,767.7	939.601	TOP OF PIPE
7116	863,470.70	2,031,851.1	966.025	TOP OF PIPE
7117	863,472.30	2,031,826.2	958.439	TOP OF PIPE
7118	863,471.24	2,031,804.2	951.045	TOP OF PIPE
7119	863,468.83	2,031,784.3	944.452	TOP OF PIPE
7121	863,143.61	2,031,341.3	0	TOP OF PIPE
7122	863,143.78	2,031,397.5	0	TOP OF PIPE
7123	863,143.61	2,031,427.5	0	TOP OF PIPE
7124	863,143.26	2,031,460.0	0	TOP OF PIPE
7125	863,143.86	2,031,479.8	0	TOP OF PIPE
7126	863,144.82	2,031,508.2	0	TOP OF PIPE
7127	863,144.65	2,031,541.4	0	TOP OF PIPE
7128	863,144.43	2,031,572.0	0	TOP OF PIPE
7129	863,145.00	2,031,609.0	0	TOP OF PIPE
7130	863,144.31	2,031,655.4	0	TOP OF PIPE
7131	863,143.31	2,031,683.7	0	TOP OF PIPE
7132	863,143.25	2,031,713.5	0	TOP OF PIPE
7133	863,143.82	2,031,750.1	939.102	30IN TEE
7134	863,175.96	2,031,766.7	939.552	TOP OF PIPE
7135	863,156.51	2,031,766.0	939.423	TOP OF PIPE
7136	863,136.88	2,031,766.2	939.59	TEE
7137	863,147.03	2,031,766.3	939.779	CROSS
7138	863,147.01	2,031,768.4	939.772	UWMN BEND
7139	863,146.42	2,031,736.0	939.669	TEE
7140	863,141.44	2,031,736.2	939.689	TEE
7141	863,136.38	2,031,736.3	939.556	BEND
7142	863,140.44	2,030,862.3	0	TEE TOP PIPE

Sherco Pond 3S Construction Survey Tabulation

Verification Survey- Pipes

As-built Pipe Survey				
Grid No.	**Northing**	**Easting**	**Elevation**	**Location Description**
7143	863,130.23	2,030,861.8	0	BEND TOP OF PIPE
7144	863,130.44	2,030,832.0	0	TEE TOP OF PIPE
7145	863,140.52	2,030,831.9	0	CROSS TOPO OF PIPE
7146	863,135.03	2,030,835.1	0	30IN BEND TOPO OF PIPE
7147	863,135.06	2,030,846.8	0	30IN TEE TOPO OF PIPE
7148	863,140.55	2,030,826.9	940.58	8IN TOPO OF PIPE
7149	863,140.31	2,030,803.9	948.932	8IN TOPO OF PIPE
7152	863,128.43	2,030,629.2	1010.631	30IN FLANGE
7153	863,128.30	2,030,680.8	992.879	30IN TOPO OF PIPE
7154	863,129.23	2,030,731.2	976.056	30IN TOPO OF PIPE
7155	863,131.52	2,030,776.9	960.815	30IN TOPO OF PIPE
7156	863,133.73	2,030,812.4	949.289	30IN TOPO OF PIPE
7157	863,134.69	2,030,832.1	942.563	30IN TOPO OF PIPE
7158	863,141.12	2,031,765.6	942.296	30IN TOPO OF PIPE
7159	863,141.14	2,031,797.8	952.635	30IN TOPO OF PIPE
7160	863,141.04	2,031,828.5	963.401	30IN TOPO OF PIPE
7161	863,141.36	2,031,846.0	968.651	30IN TOPO OF PIPE
7162	863,144.81	2,031,847.6	966.886	8IN TOPO OF PIPE
7163	863,146.90	2,031,825.1	958.831	8IN TOPO OF PIPE
7164	863,148.04	2,031,798.8	949.766	8IN TOPO OF PIPE
7165	863,147.46	2,031,778.5	942.932	8IN TOPO OF PIPE
7166	863,087.09	2,031,767.0	939.708	TOPO OF PIPE
7167	863,162.82	2,030,857.6	941.699	Top of 12in CMP Culvert
7168	863,112.93	2,030,859.5	941.797	Top of 12in CMP Culvert
7169	863,022.14	2,031,766.6	0	ELEV CHANGE IN PIPE, TOP OF ROCK
7170	862,971.12	2,031,767.4	0	TOPO OF PIPE
7171	862,939.11	2,031,767.6	0	TOPO OF PIPE
7172	862,904.39	2,031,767.5	0	TOPO OF PIPE
7173	862,841.10	2,031,765.7	0	TOPO OF PIPE
7174	862,818.16	2,031,764.1	0	CROSS, TOP OF PIPE
7175	862,818.02	2,031,750.1	0	ELEV CHANGE IN PIPE, TOP OF ROCK
7176	862,787.07	2,031,764.7	0	TOPO OF PIPE
7177	862,758.64	2,031,765.9	0	TOPO OF PIPE
7178	862,734.25	2,031,765.3	0	TOPO OF PIPE
7179	862,711.23	2,031,765.2	0	TOPO OF PIPE

Sherco Pond 3S Construction Survey Tabulation

Verification Survey- Pipes

As-built Pipe Survey				
Grid No.	**Northing**	**Easting**	**Elevation**	**Location Description**
7180	862,691.05	2,031,765.0	0	BEND, TOP OF PIPE
7181	862,682.94	2,031,770.4	942.381	TOPO OF PIPE
7182	862,677.72	2,031,786.4	946.557	TOPO OF PIPE
7183	862,680.02	2,031,825.4	959.375	TOPO OF PIPE
7184	862,685.29	2,031,851.4	967.029	TOPO OF PIPE
7185	862,819.41	2,031,846.6	965.831	TOPO OF PIPE
7186	862,819.31	2,031,813.9	955.453	TOPO OF PIPE
7187	862,818.54	2,031,784.4	945.859	TOPO OF PIPE
7188	862,818.28	2,031,768.6	941.911	TOPO OF PIPE
7189	862,791.60	2,030,861.8	941.823	Top of 12in CMP Culvert
7190	862,831.82	2,030,861.2	941.938	Top of 12in CMP Culvert
7191	862,837.66	2,031,732.6	941.8	Top of 12in CMP Culvert
7192	862,797.70	2,031,732.2	941.764	Top of 12in CMP Culvert
100016	863,649.54	2,030,625.6	1012.063	TOP OF CLEANOUT 8 INCH
100019	863,485.86	2,030,626.4	1011.752	TOP OF CLEANOUT 8 INCH
100031	863,138.45	2,030,629.3	1012.001	TOP OF CLEANOUT 8 INCH
100032	863,128.97	2,030,629.3	1011.708	TOP OF CLEANOUT 30 INCH
100036	862,821.22	2,030,628.2	1011.862	TOP OF CLEANOUT 8 INCH
100039	862,609.46	2,030,627.6	1011.672	TOP OF CLEANOUT 8 INCH
101242	863,630.95	2,031,884.5	979.862	TOP OF CLEANOUT 8 INCH
101249	863,458.88	2,031,896.8	982.218	TOP OF CLEANOUT 8 INCH
101348	863,140.65	2,031,921.2	986.67	TOP OF CLEANOUT 8 INCH
101349	863,137.46	2,031,923.2	986.701	TOP OF CLEANOUT 30 INCH
101548	862,678.44	2,031,896.5	982.37	TOP OF CLEANOUT 8 INCH
101549	862,815.30	2,031,893.8	981.575	TOP OF CLEANOUT 8 INCH

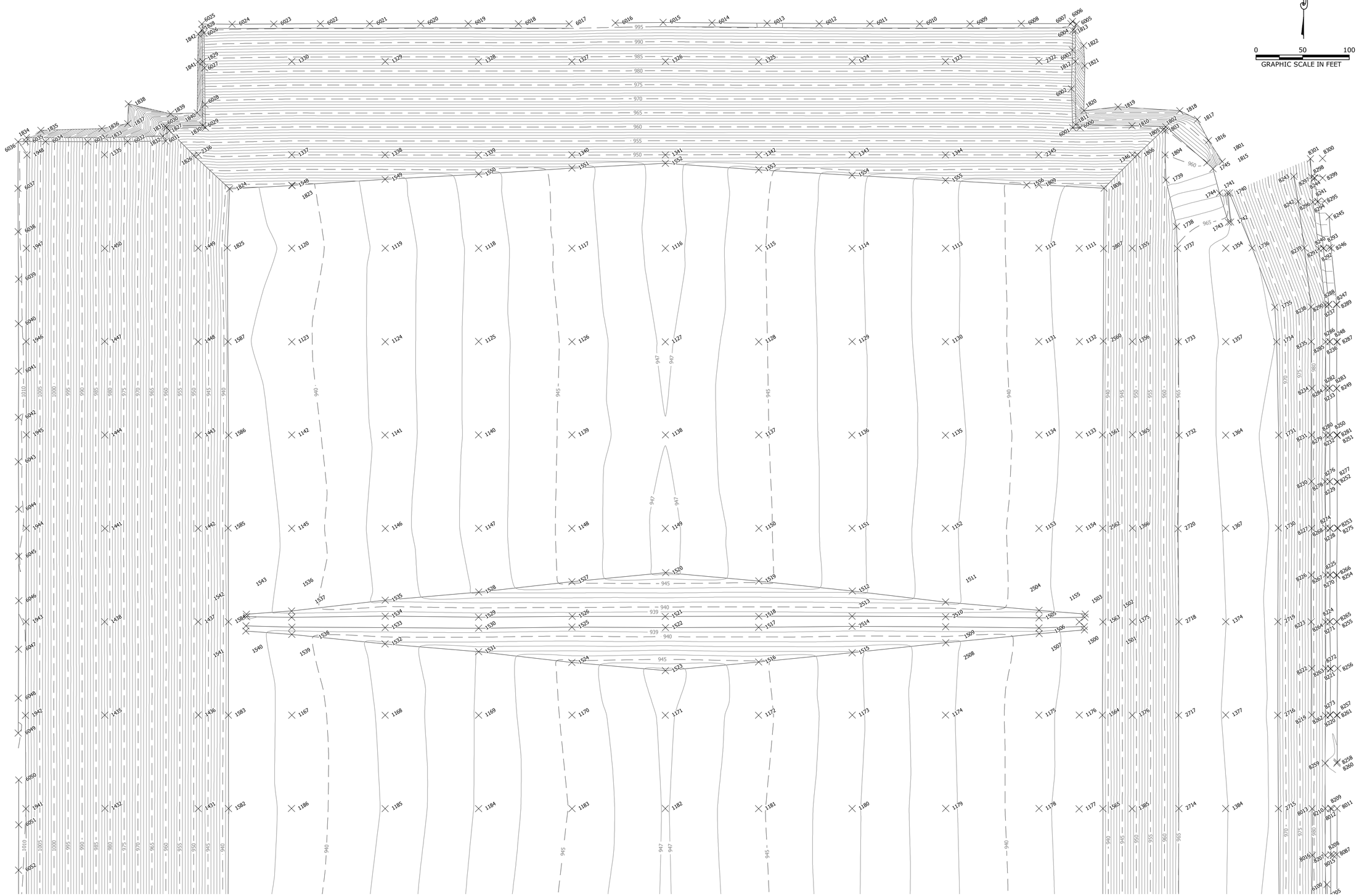
Pond 3S Construction Survey Tabulation

Verification Survey-Miscellaneous

	Misc. survey data (manholes, culverts, pipes, clean-outs, etc), provide detailed description			
Pt. No.	**Northing**	**Easting**	**Elevation**	**Description**
7200	862,188.54	2,030,400.07	957.18	Inlet Invert, East 18 inch CMP
7201	862,188.57	2,030,396.17	957.09	Inlet Invert, Center 18 inch CMP
7202	862,188.84	2,030,392.39	957.18	Inlet Invert, West 18 inch CMP
7203	862,141.76	2,030,392.57	956.12	Inlet Invert, West 18 inch CMP
7204	862,141.58	2,030,396.33	956.25	Inlet Invert, Center 18 inch CMP
7205	862,141.69	2,030,400.36	956.46	Inlet Invert, East 18 inch CMP

Survey As-Built Verification Drawings

Sub Grade As-Built Survey



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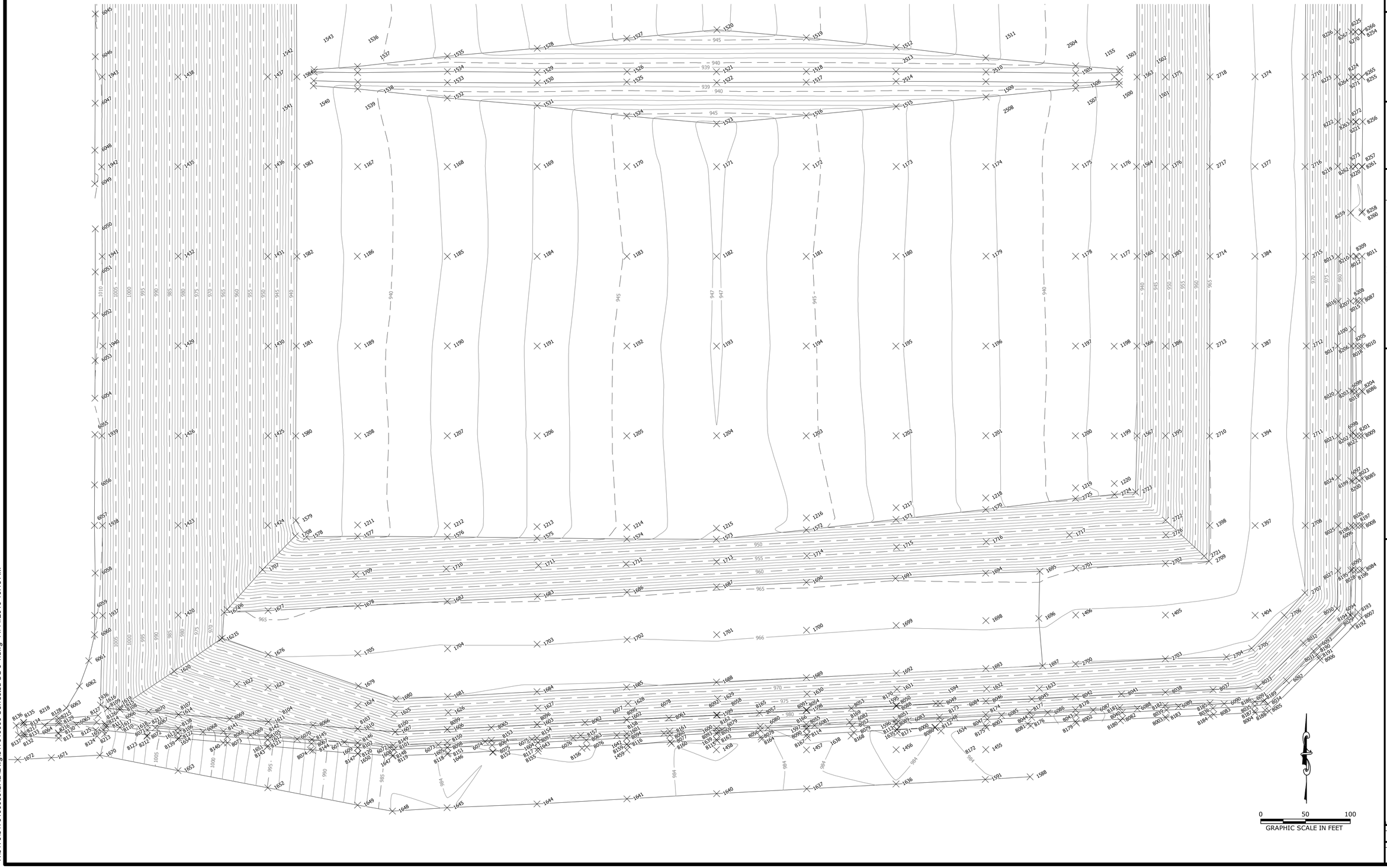
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Sub Grade As-Built Survey



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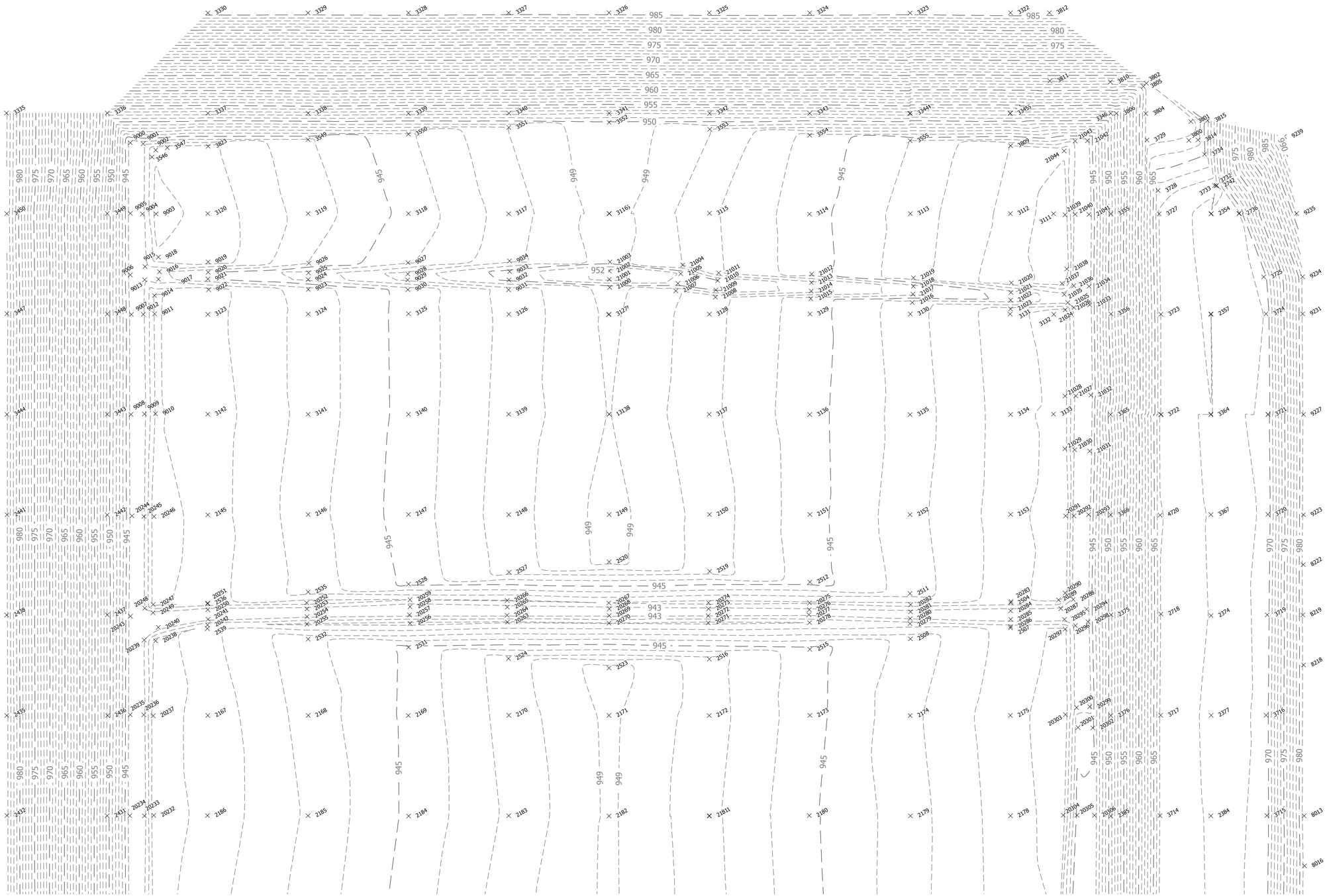
17010006 Corrected SG 9-

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Sand Layer As-Built Survey



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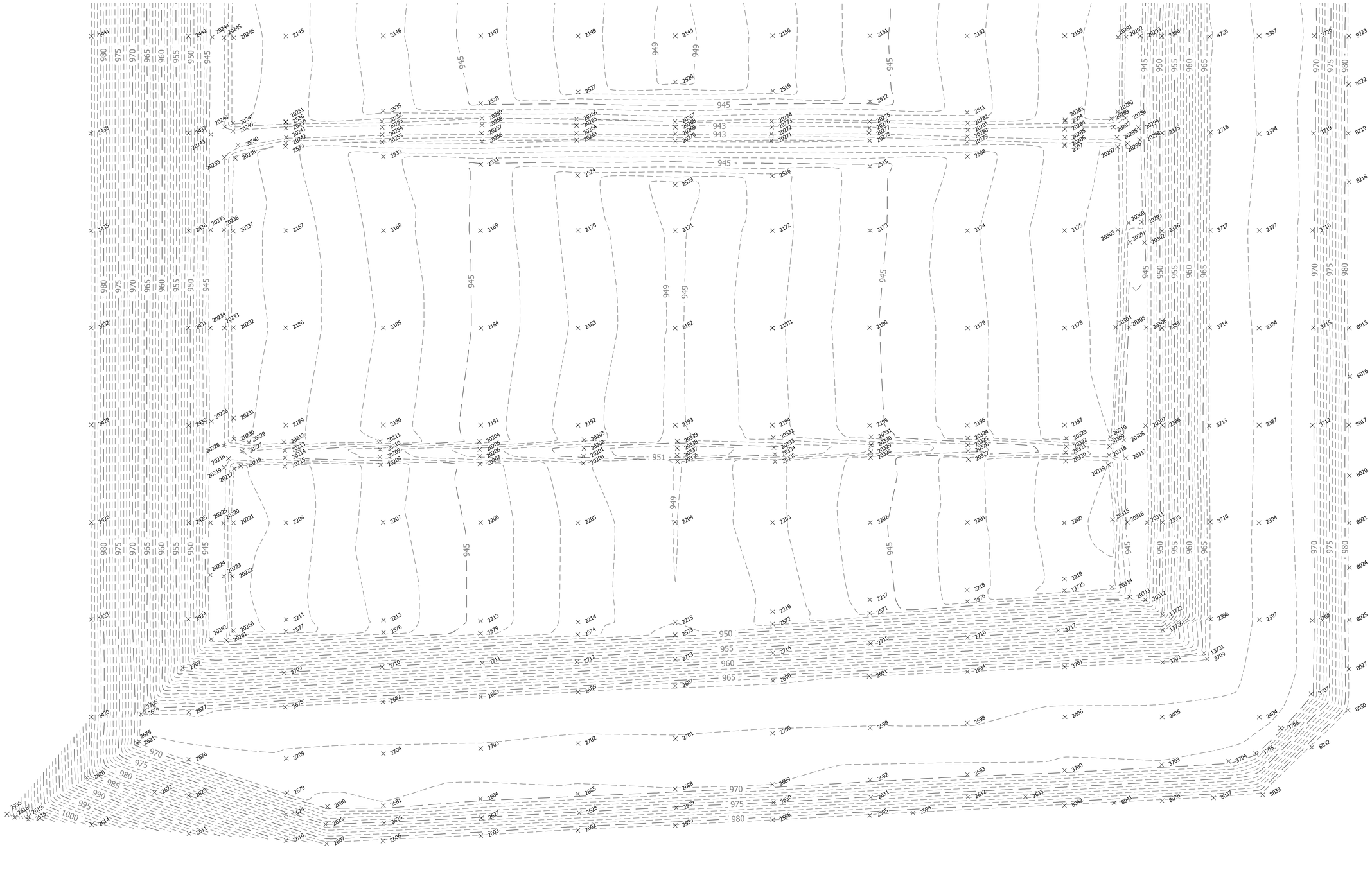
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SIGNATURE: Daniel J. Brosnahan
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Sand Layer As-Built Survey



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17010006 Sand Shots 10-2
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As-Built Survey Points

Legend of Symbols & Abbreviations

MAJOR CONTOUR

MINOR CONTOUR

GRAVEL SURFACE

0 40 80

GRAPHIC SCALE IN FEET

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As-Built Survey Points

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DATE: 11/12/2010

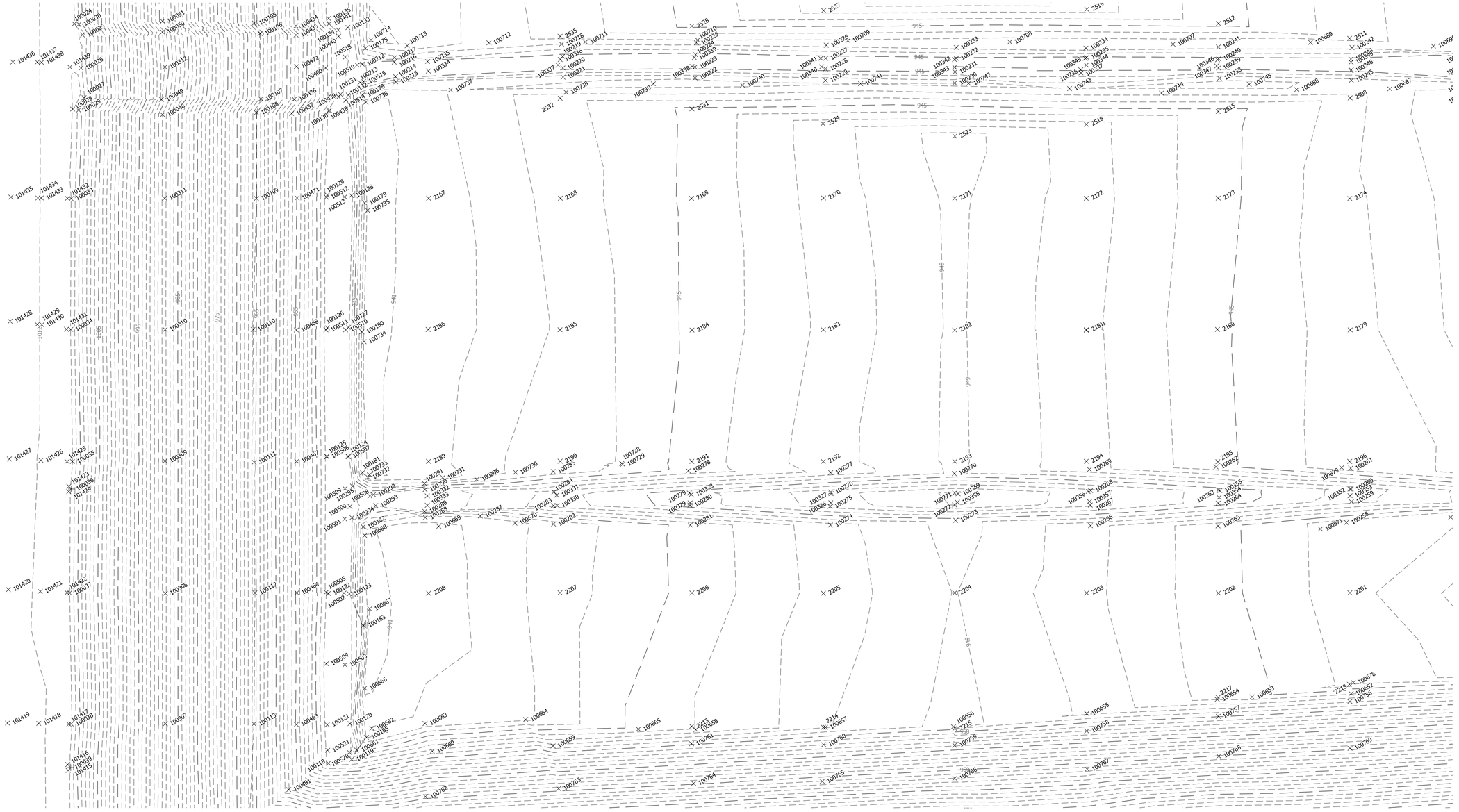
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Sheet 2

As-Built Survey Points



Legend of Symbols & Abbreviations

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Fax: 320-251-4232
Website:www.bonestroo.com

REVISION	DATE

SURVEY BY :	DJB
DRAWN BY :	DJB
DESIGNED BY :	DJB
APPROVED BY :	DJB
DATE :	4/06/2010
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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: Daniel J. Beenboom
SIGNATURE:
DATE: 11/12/2010
LIC. NO. 46562

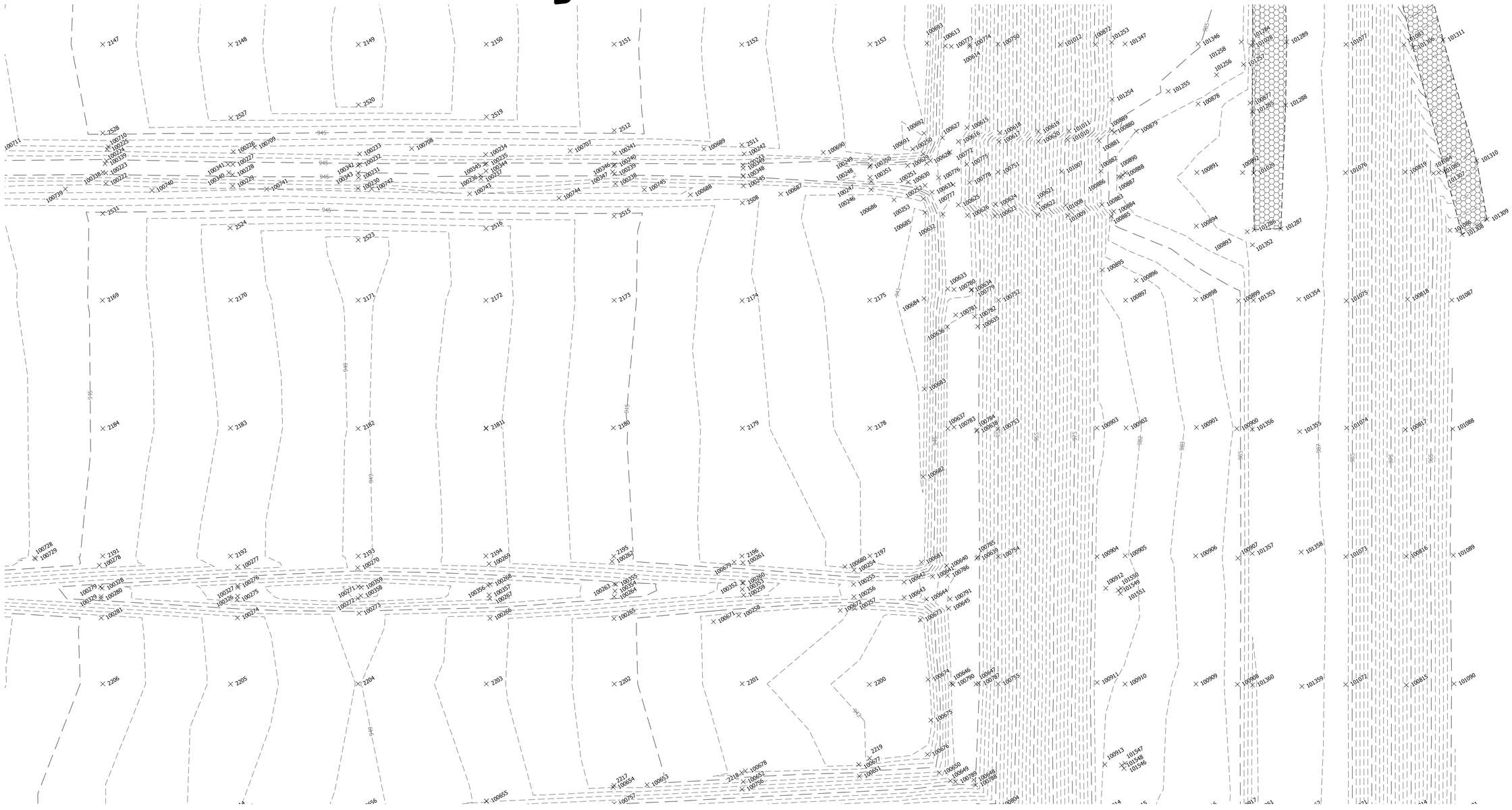
VEIT COMPANIES
Sherco South Pond 3 Construction
14000 Veit Place
Rogers, MN. 55374

3170100060 As-built Final Points

PROJECT NUMBER
3170-10006

SHEET NUMBER
Sheet 3

As-Built Survey Points



Legend of Symbols & Abbreviations

- MAJOR CONTOUR
- MINOR CONTOUR
- GRAVEL SURFACE

0 40 80

GRAPHIC SCALE IN FEET

T:\3170\3170100060\CAD\Dwg\3170100060 As-built Final Points.dwg 11/12/2010 11:24 AM

Bonestroo

St. Cloud Office
3717 23rd Street South
Saint Cloud, MN 56301
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Fax: 320-251-4232
Website: www.bonestroo.com

REVISION	DATE

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DRAWN BY :	DJB
DESIGNED BY :	DJB
APPROVED BY :	
DATE :	4/06/2010
PROJECT NO.	
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PRINT NAME: Daniel J. Bernboom
SIGNATURE: Daniel J. Bernboom LIC. NO. 46562
DATE: 11/12/2010

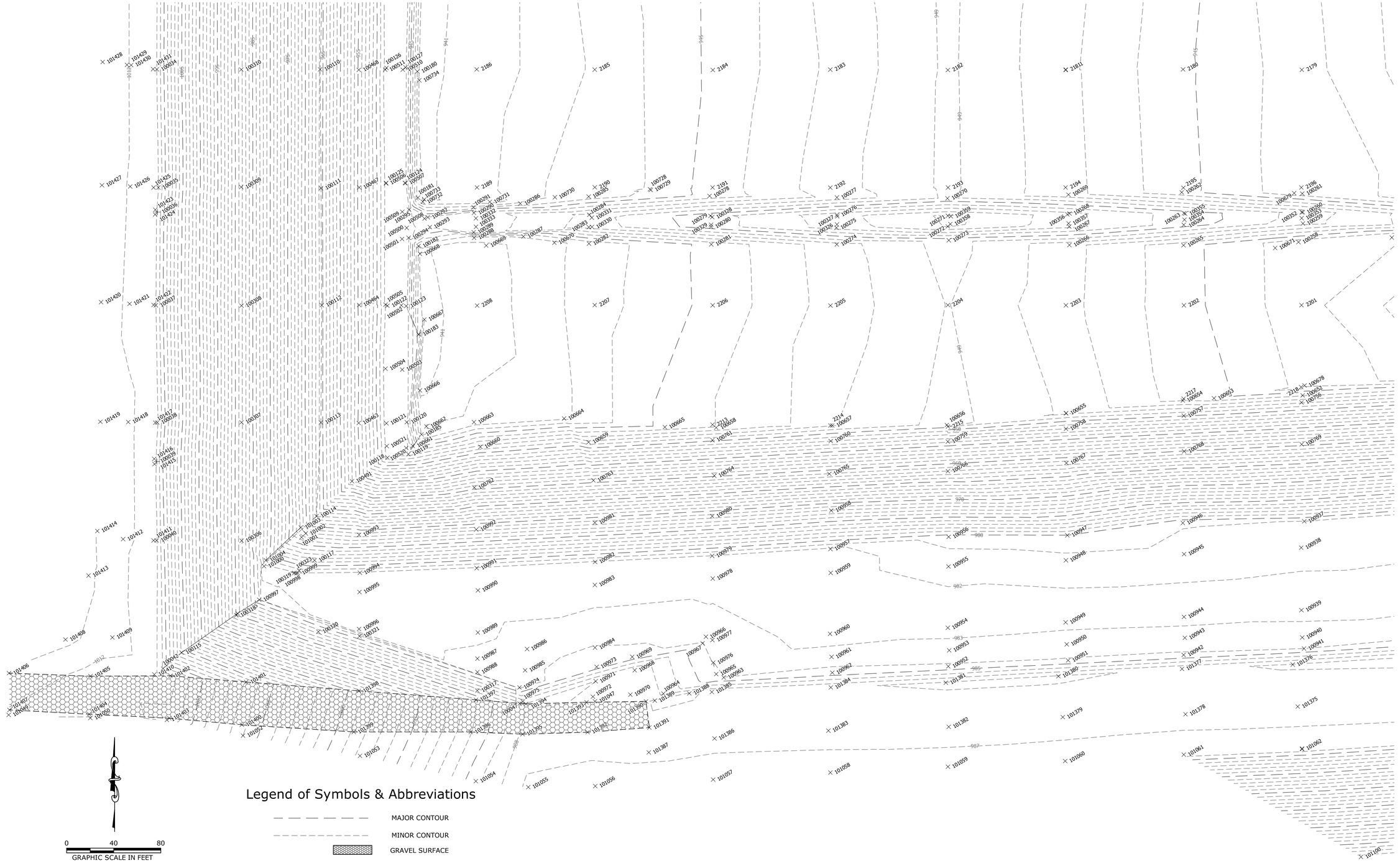
VEIT COMPANIES
Sherco South Pond 3 Construction
14000 Veit Place
Rogers, MN. 55374

3170100006 As-built Final Points

PROJECT NUMBER
3170-10006

SHEET NUMBER
Sheet 4

As-Built Survey Points



T:\3170\3170100060\CAD\Dwg\3170100 6 As-built Final Points.dwg 11/12/2010 11:25 AM

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Saint Cloud, MN 56301
Phone: 320-251-4553
Fax: 320-251-4552
Website:www.bonestroo.com

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		SURVEY BY : DJB
		DRAWN BY : DJB
		DESIGNED BY : DJB
		APPROVED BY :
		DATE : 4/06/2010
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PRINT NAME: David J. Bentboom LIC. NO. 46562

SIGNATURE: David J. Bentboom

DATE: 11/12/2010

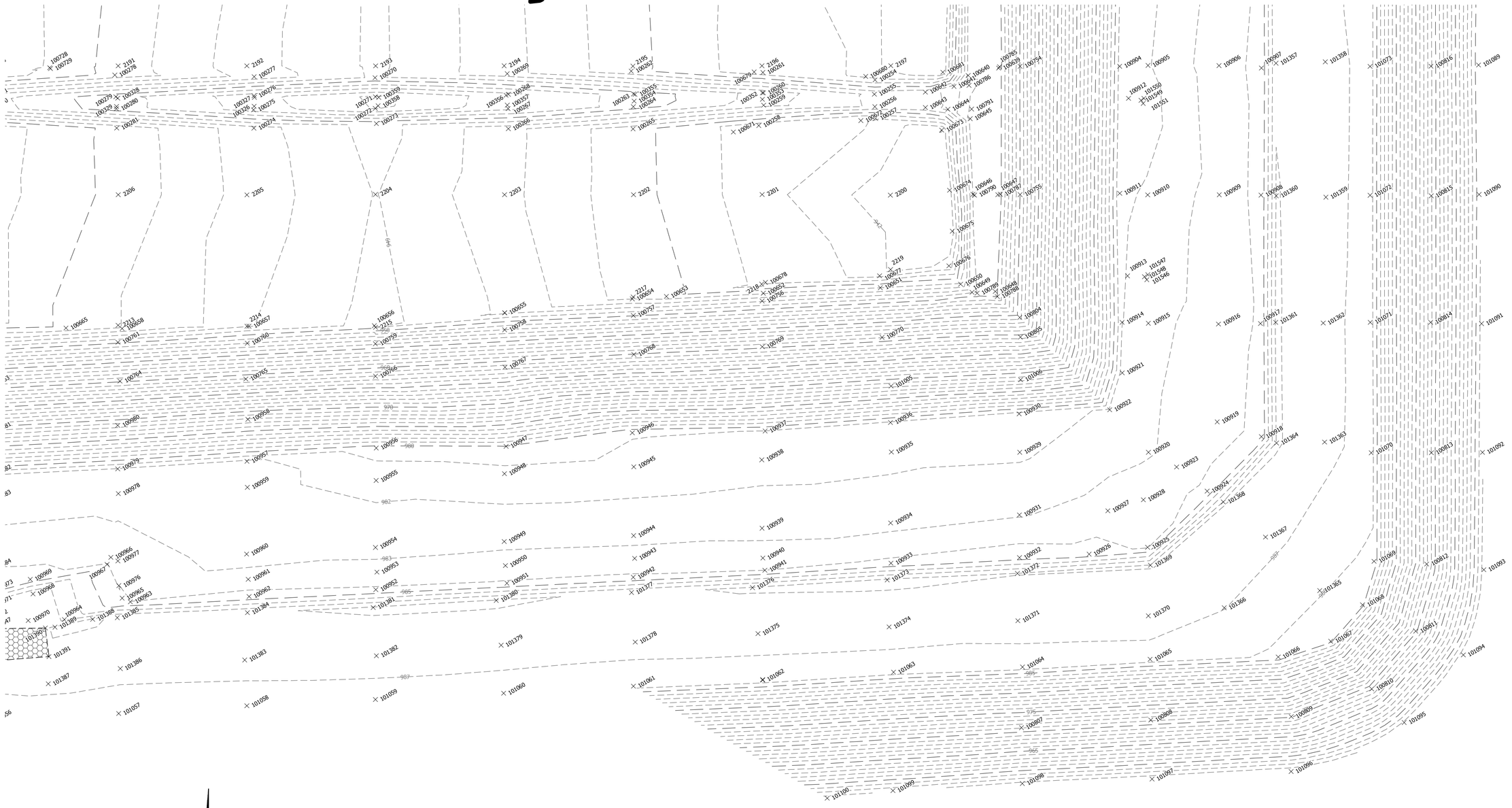
VEIT COMPANIES
Sherco South Pond 3 Construction
14000 Veit Place
Rogers, MN. 55374

3170100 6 As-built Final Points

PROJECT NUMBER
3170-10006

SHEET NUMBER
Sheet 5

As-Built Survey Points





Legend of Symbols & Abbreviations

MAJOR CONTOUR

MINOR CONTOUR

GRAVEL SURFACE

T:\3170\3170100060\CAD\Dwg\3170100006 As-built Final Points.dwg 11/12/2010 11:25 AM

Bonestroo

St. Cloud Office
3717 23rd Street South
Saint Cloud, MN 56301
Phone: 320-251-4553
Fax: 320-251-4252
Website: www.bonestroo.com

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DESIGNED BY :	DJB
APPROVED BY :	
DATE :	4/06/2010
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PRINT NAME: Daniel J. Bamboom
SIGNATURE: Daniel J. Bamboom LIC. NO. 46562
DATE: 11/12/2010

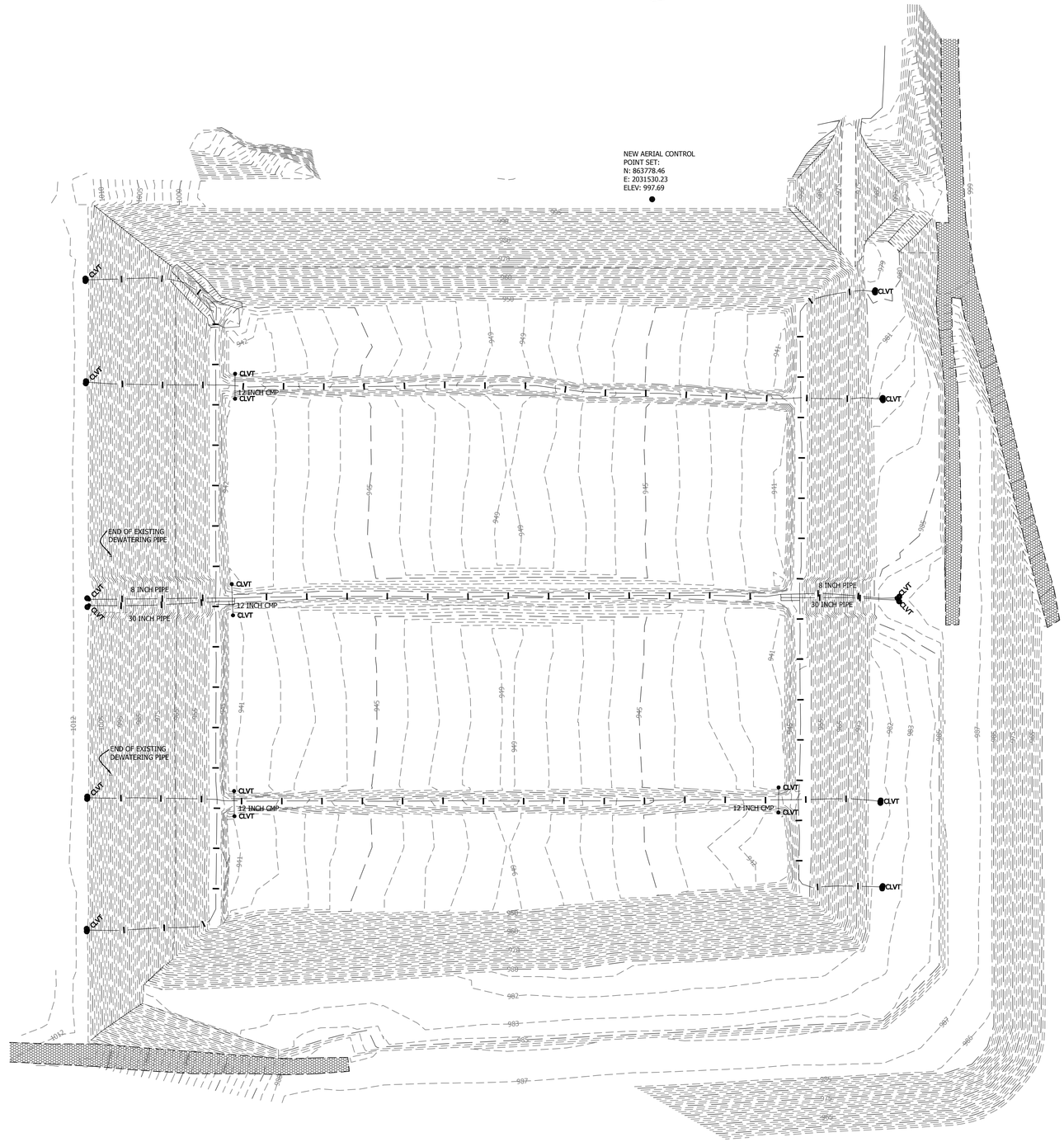
VEIT COMPANIES
Sherco South Pond 3 Construction
14000 Veit Place
Rogers, MN. 55374

3170100006 As-built Final Points

PROJECT NUMBER
3170-10006

SHEET NUMBER
Sheet 6

As-Built Survey



0 100 200
GRAPHIC SCALE IN FEET

Legend of Symbols & Abbreviations

- MAJOR CONTOUR
- MINOR CONTOUR
- DEWATERING PIPES
- BOLLARD
- CLVT END OF PIPE
- GRAVEL SURFACE

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3717 23rd Street South
Saint Cloud, MN 56301
Phone: 320-251-4553
Fax: 320-251-4552
Website: www.bonestroo.com

DATE	REVISION

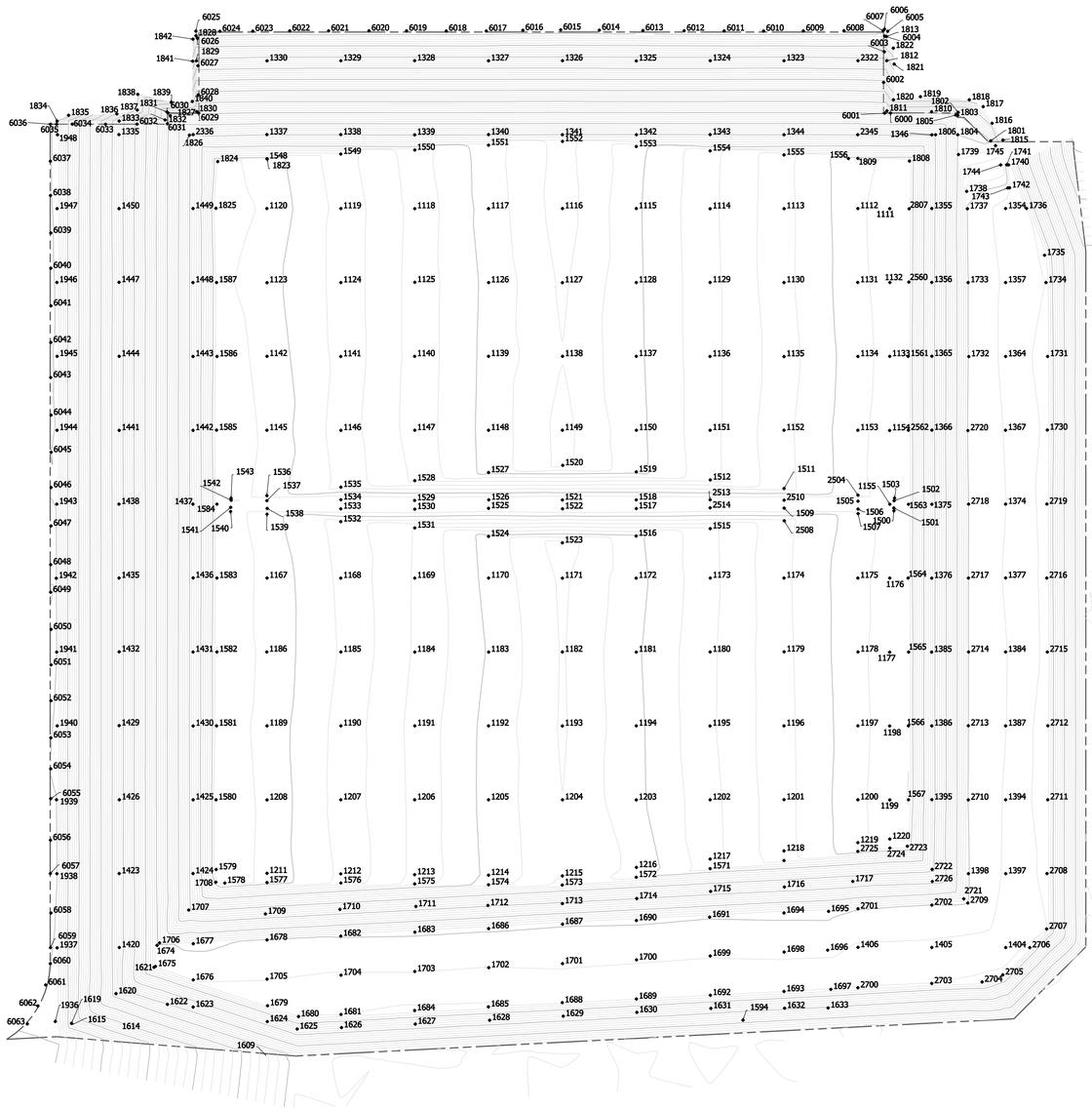
SURVEY BY : DJB
DRAWN BY : DJB
DESIGNED BY :
APPROVED BY : DJB
DATE : 4/06/2010
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PRINT NAME: Daniel J. Bomboom
SIGNATURE: Daniel J. Bomboom LIC. NO. 46562
DATE: 11/09/2010

VEIT COMPANIES
Sherco South Pond 3 Construction
14000 Veit Place
Rogers, MN. 55374

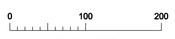
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PROJECT NUMBER
3170-10006
SHEET NUMBER
Sheet 1

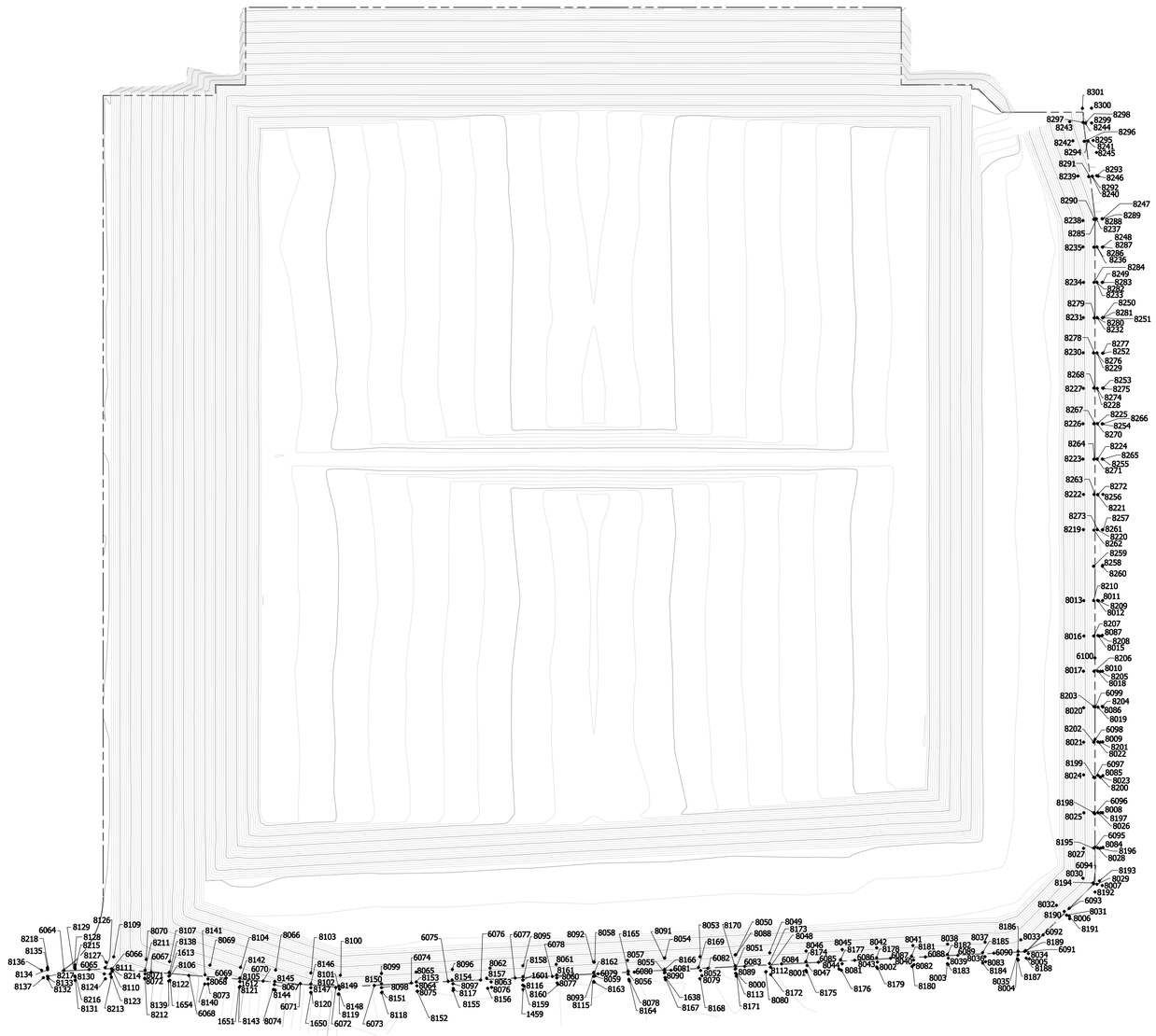
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Pond 3S Construction Survey Grid Point Numbers





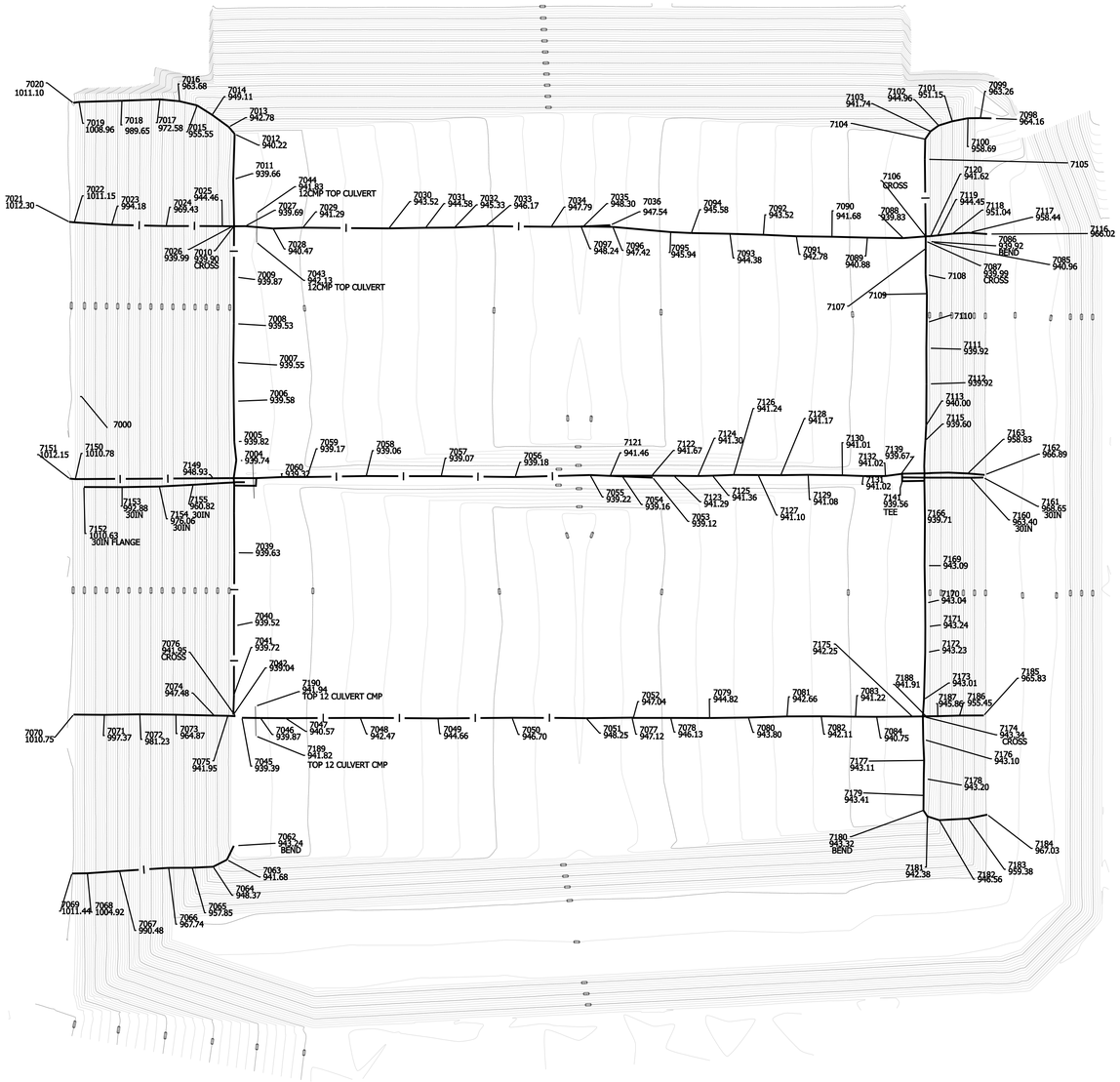


Pond 3S Construction Survey Clay Point Numbers

N

0 100 200

SCALE IN FEET



Pond 3S Construction Survey Top of Pipe Elevations and Point Numbers

Record Drawings

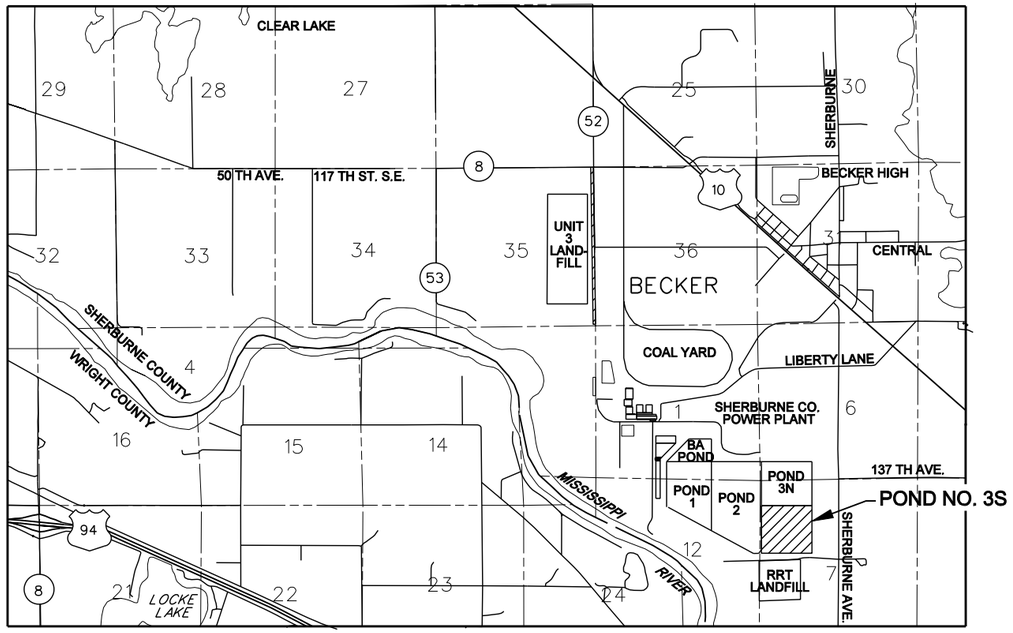
Record Drawings (2009 Construction)
Record Drawings (2010 Construction)

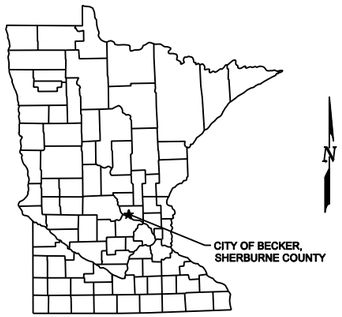
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1	10-19-2009	REVISED GRADING PLAN	DSS	DSS	XCEL
0	10-08-2009	ISSUED FOR CONSTRUCTION	DSS	DSS	XCEL

RECORD DRAWINGS
SHERBURNE COUNTY (SHERCO) GENERATING PLANT
2009 POND 3 SOUTH CONSTRUCTION

NPDES PERMIT No. 0002186
BECKER, MINNESOTA
NORTHERN STATES POWER COMPANY
dba XCEL ENERGY, INC.





0 1000 2000 3000 4000 5000
SCALE IN FEET

SITE LOCATION MAP

SHEET	DRAWING TITLE	XCEL DRAWING NO.
P1	INDEX SHEET	
P2	EXISTING CONDITIONS	
P3	GRADING PLAN AND BORROW AREA	
P4	AS-BUILT GRADING PLAN	
P5	POND 2 CLAY SLOPE LINER EXCAVATION	NH-194808-205
P6	AS-BUILT SECTIONS	

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Name Darren S. Schwake
Signature Darren S Schwake
Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DSS DATE 01/06/11
DGN'R DSS CHK'D DJR
APP'D & CERT.
FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT
TITLE: 2009 POND 3 SOUTH CONSTRUCTION
INDEX SHEET

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO.
Sheet No. P1
REV ▲

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0	10-08-2009	ISSUED FOR CONSTRUCTION	DSS	DSS	XCEL

POND 2

POND 3N

EDGE OF EXIST. POND 3N LINER

EDGE OF EXIST. POND 3N LINER

SSP2-W05

SSP2-W06

SSP2-W07

SSP2-W08

SSP2-W09

EXIST. POND 2 DEWATERING WELL (TYP)

POND 3S GRADE BREAK LINES (TYP)

POND 3S EMBANKMENT LIMIT

GRANULAR DRAINAGE MATERIAL STOCKPILES

PROPOSED INFILTRATION POND

SECURITY FENCE

P132

P108

EXIST. MONITORING WELL (TYP)

N

0 100 200

SCALE IN FEET

NOTE:
EXISTING TOPOGRAPHY FROM AERIAL SURVEY ON NOVEMBER 26, 2008 BY AERO-METRIC, INC.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Darren S. Schwake

Signature

Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DSS	DATE 01/06/11
DGN'R DSS	CHK'D DJR

APP'D & CERT.

FILMED

FACILITY:
SHERBURNE COUNTY GENERATING PLANT

TITLE:
2009 POND 3 SOUTH CONSTRUCTION

EXISTING CONDITIONS

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO.

Sheet No. P2

REV ▲

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0	10-08-2009	ISSUED FOR CONSTRUCTION	DSS	DSS	XCEL

POND 3N

POND 2

SSP2-W05

SSP2-W06

SSP2-W07

SSP2-W08

SSP2-W09

EDGE OF EXIST. POND 3N LINER

EDGE OF EXIST. POND 3N LINER

EXTEND BORROW AREA NORTH TO N 864,485

3:1

3:1

3:1

3:1

Prismoidal Volume Results (Borrow Available)

Original Surface Model:	2008 flyover
Final Surface Model:	2009 borrow
Cut Compaction Factor:	-15.00 %
Fill Compaction Factor:	0.00 %
Raw Cut Volume:	252,448 cu yd
Compacted Cut Volume:	-37,867 cu yd
Total Cut Volume:	214,581 cu yd

STRIP TOPSOIL WEST OF THIS LINE UP TO TOE OF POND EMBANKMENT

N 863,585.00
E 2,032,300.00
Elev. 945.00

N 863,585.00
E 2,032,650.00
Elev. 945.00

E 2,032,795

N 863,490

STRIP TOPSOIL NORTH OF THIS LINE UP TO TOE OF ENTRANCE ROAD EMBANKMENT

EXIST. POND 2 DEWATERING WELLS, DO NOT REMOVE COVER SOILS WITHIN 30' RADIUS OF WELLS

1.89%

1.11%

1.89%

1
P6

2
P6

CATCH LINE

FUTURE PIPE AND MANHOLE, BY OTHERS

INFILTRATION POND

INFILTRATION POND

ROAD

ROAD

P132

PROTECT MONITORING WELL (TYP)

P108

N

0 100 200
SCALE IN FEET

Prismoidal Volume Results (overall)

Original Surface Model:	2008 flyover
Final Surface Model:	2009 subgrade
Cut Compaction Factor:	0.00 %
Fill Compaction Factor:	10.00 %
Raw Cut Volume:	297753.77 cu yd
Total Cut Volume:	297753.77 cu yd
Raw Fill Volume:	386590.47 cu yd
Compacted Fill Volume:	38659.05 cu yd
Total Fill Volume:	425249.52 cu yd

Prismoidal Volume Results (East embankment only)

Original Surface Model:	2008 flyover
Final Surface Model:	2009 subgrade
Fill Compaction Factor:	10.00 %
Raw Fill Volume:	119147.09 cu yd
Compacted Fill Volume:	11914.71 cu yd
Total Fill Volume:	131061.80 cu yd

Prismoidal Volume Results (South embankment only)

Original Surface Model:	2008 flyover
Final Surface Model:	2009 subgrade
Fill Compaction Factor:	10.00 %
Raw Fill Volume:	264975.63 cu yd
Compacted Fill Volume:	26497.56 cu yd
Total Fill Volume:	291473.20 cu yd

NOTES:
EXISTING TOPOGRAPHY FROM AERIAL SURVEY ON NOVEMBER 26, 2008 BY AERO-METRIC, INC.

STRIP AND STOCKPILE CLASS 5 AND TOPSOIL AS DIRECTED BY OWNER

PLACE EMBANKMENT IN MAXIMUM 12" LIFTS AND COMPACT TO AT LEAST 95% STANDARD PROCTOR DENSITY

MAXIMUM ALLOWABLE ROCK SIZE 12"

▲ THIS SHEET SHOWS THE ORIGINAL DESIGN GRADES AND BORROW AREA, SEE SHEET P4 FOR AS-BUILT GRADES

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Darren S. Schwake

Signature

Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN	DSS	DATE	01/06/11
DGN'R	DSS	CHK'D	DJR

APP'D & CERT.

FILMED

FACILITY:
SHERBURNE COUNTY GENERATING PLANT

TITLE:
2009 POND 3 SOUTH CONSTRUCTION

DESIGN GRADING PLAN AND BORROW AREA

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO.

Sheet No. P3

REV ▲

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1	10-19-2009	REVISED GRADING PLAN	DSS	DSS	XCEL
0	10-08-2009	ISSUED FOR CONSTRUCTION	DSS	DSS	XCEL

POND 2

POND 3N

POND 3S

SOIL BORROW AREA

TOPSOIL STOCKPILE

GRANULAR DRAINAGE MATERIAL STOCKPILES

TOPSOIL STOCKPILE

TOPSOIL STOCKPILE

EXIST. POND 2 DEWATERING WELL (TYP)

SSP2-W05

SSP2-W06

SSP2-W07

SSP2-W08

SSP2-W09

INFILTRATION POND

INFILTRATION POND

ROAD

ROAD

P132

P108

2031500E

2030500E

864000N

1019.94

998.44

963.30

959.05

955.27

1

P6

2

P6

NOTE:
TOPOGRAPHY FROM AERIAL SURVEY ON DECEMBER 5, 2009 BY AERO-METRIC, INC.

N

0 100 200
SCALE IN FEET

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Name Darren S. Schwake

Signature

Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN	DSS	DATE	01/06/11
DGN'R	DSS	CHK'D	DJR
APP'D & CERT.			
FILMED			

FACILITY:
SHERBURNE COUNTY GENERATING PLANT

TITLE:
2009 POND 3 SOUTH CONSTRUCTION

AS-BUILT GRADING PLAN

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO.

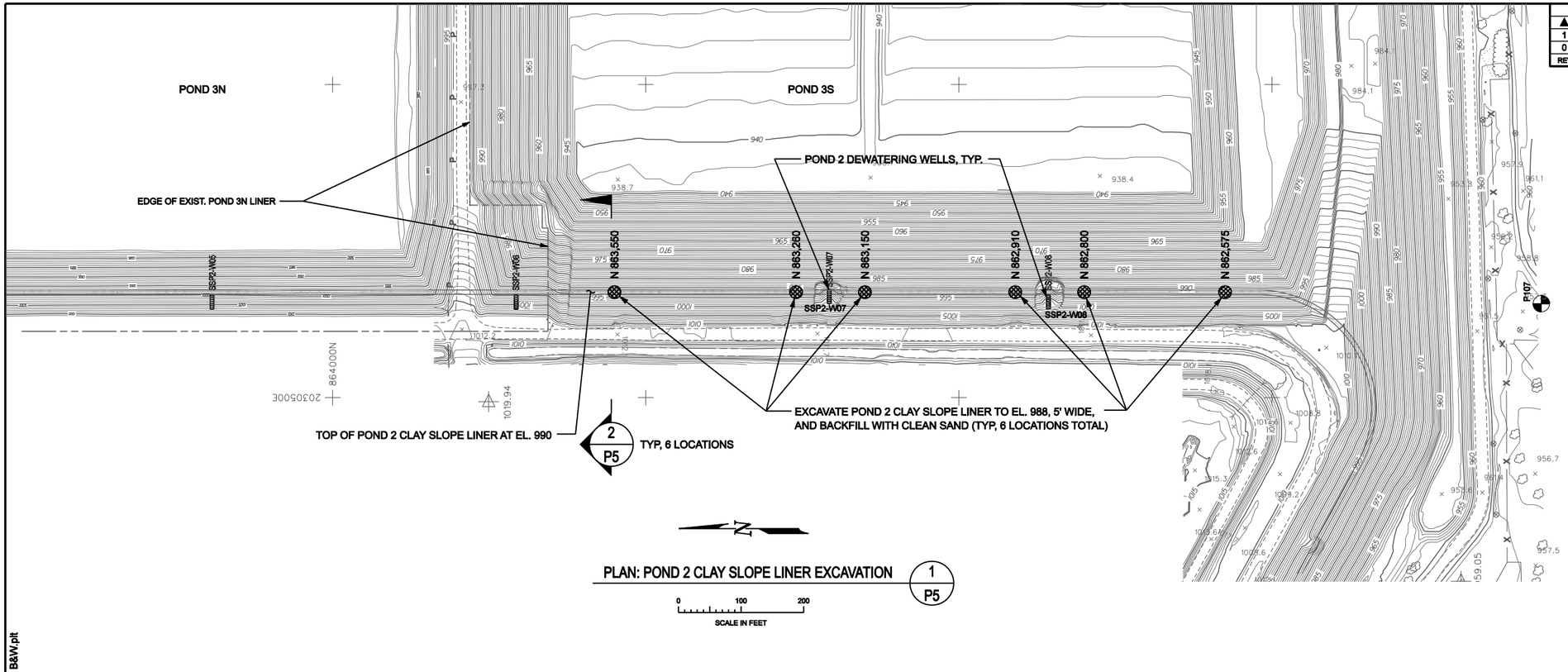
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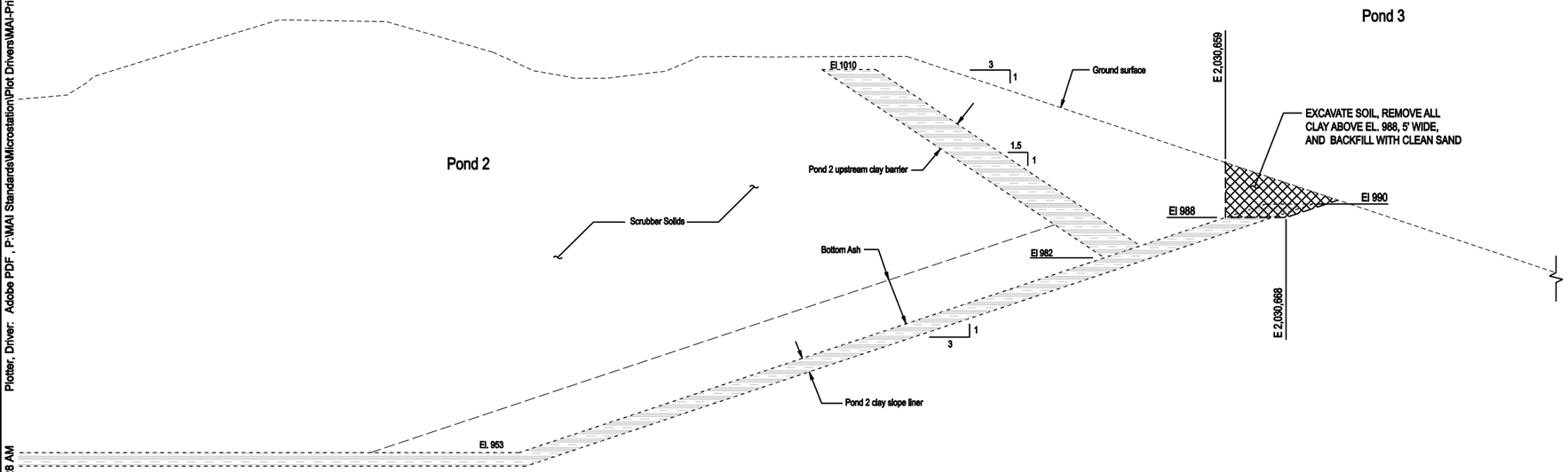
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1	10-19-2009	REVISED GRADING PLAN	DSS	DSS	XCEL
0	10-08-2009	ISSUED FOR CONSTRUCTION	DSS	DSS	XCEL



PLAN: POND 2 CLAY SLOPE LINER EXCAVATION — 1 / P5

0 100 200
SCALE IN FEET



SECTION: POND 2 CLAY SLOPE LINER EXCAVATION — 2 / P5

0 10 20
SCALE IN FEET

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Name Darren S. Schwake

Signature

Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DSS DATE 01/06/11
DGN'R DSS CHK'D DJR
APP'D & CERT.
FILMED

FACILITY:
SHERBURNE COUNTY GENERATING PLANT

TITLE:
2009 POND 3 SOUTH CONSTRUCTION

POND 2 CLAY SLOPE LINER EXCAVATION

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO. NH-194808-205

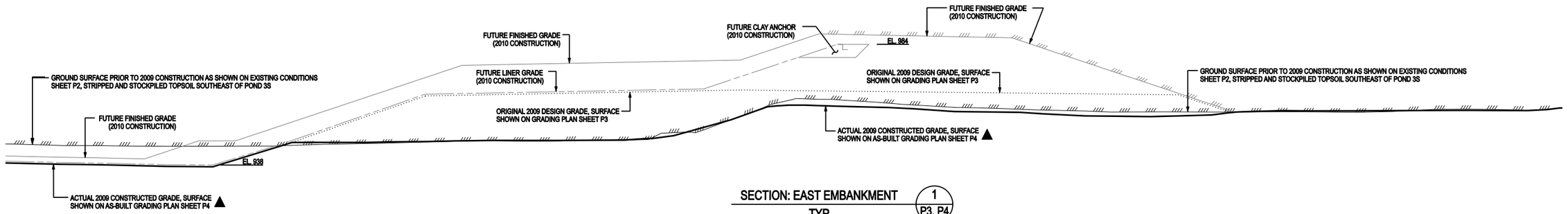
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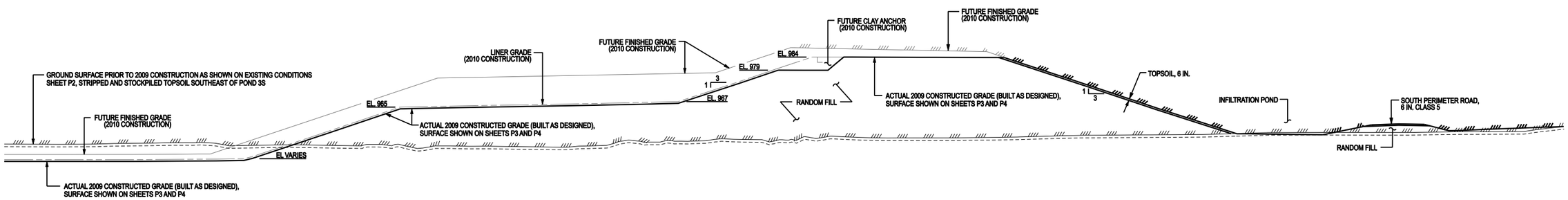
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▲	01-06-2011	RECORD DRAWINGS	DSS	DSS	DJR
1	10-19-2009	REVISED GRADING PLAN	DSS	DSS	XCEL
0	10-08-2009	ISSUED FOR CONSTRUCTION	DSS	DSS	XCEL



SECTION: EAST EMBANKMENT TYP — 1 / P3, P4

0 20 40
SCALE IN FEET



SECTION: SOUTH EMBANKMENT TYP — 2 / P3, P4

0 20 40
SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Darren S. Schwake

Signature

Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DSS	DATE 01/06/11	FACILITY: SHERBURNE COUNTY GENERATING PLANT
DGN'R DSS	CHK'D DJR	
APP'D & CERT.		TITLE: 2009 POND 3 SOUTH CONSTRUCTION
FILMED		AS-BUILT SECTIONS

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO.

Sheet No. P6

REV ▲

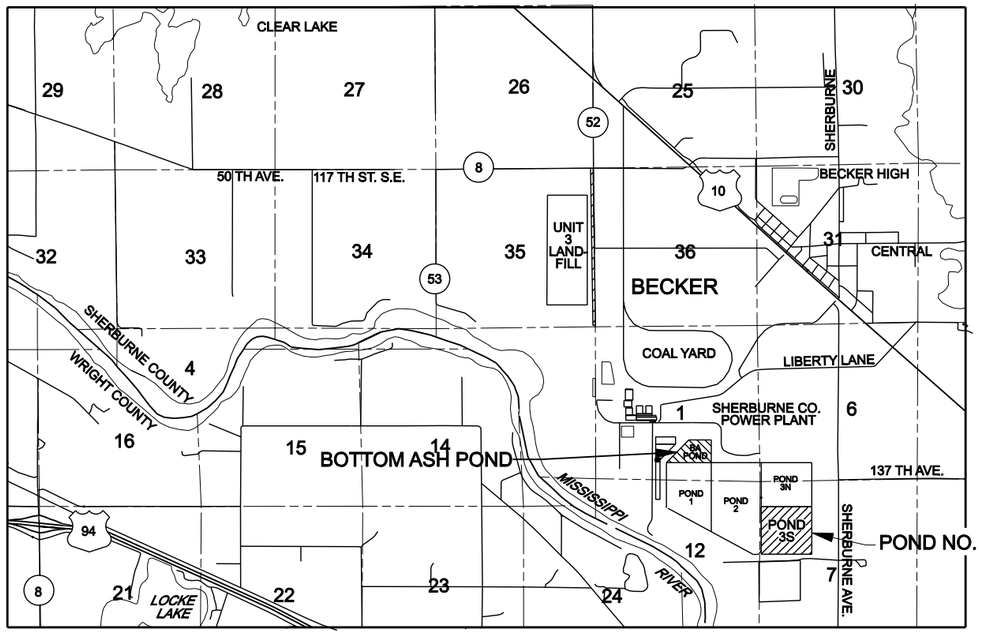
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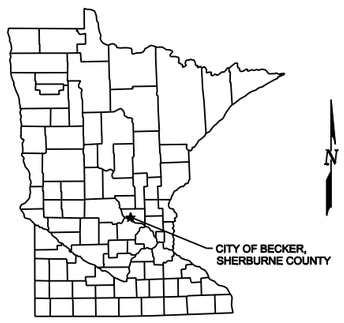
Record Drawings (2010 Construction)

REV	DATE	DESCRIPTION	BY	DWN	CHK'D
▲	01-06-2011	RECORD DRAWINGS	DJR	DJR	DSS
0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR

RECORD DRAWINGS
SHERBURNE COUNTY (SHERCO) GENERATING PLANT
2010 POND 3 SOUTH CONSTRUCTION

NPDES PERMIT No. 0002186
BECKER, MINNESOTA
NORTHERN STATES POWER COMPANY
dba XCEL ENERGY, INC.





0 1000 2000 3000 4000 5000
SCALE IN FEET

SITE LOCATION MAP

SHEET	DRAWING TITLE	XCEL DRAWING NO.
	GENERAL	
G1	INDEX SHEET	NH-194808-201
G2	GENERAL LEGEND	
G3	PLANT LAYOUT AND PROJECT AREAS	
G4	POND PROJECTS LAYOUT	
	BOTTOM ASH POND EXCAVATION	
BA1	BOTTOM ASH POND EXISTING CONDITIONS	
BA2	BOTTOM ASH POND BASE GRADES	
	POND 3S CONSTRUCTION	
P1	EXISTING CONDITIONS AND PROPOSED LINER LIMIT	
P2	LINER GRADING PLAN AND CLAY ANCHOR ALIGNMENT	NH-194808-202
P3	LINER AND CLAY ANCHOR ALIGNMENT SURVEY DATA	NH-194808-203
P4	FINISHED GRADING PLAN, PIPE LAYOUT, AND WEIR EXCAVATION PLAN	
▲ P4A	AS-BUILT FINISHED GRADING PLAN, PIPE LAYOUT, AND WEIR EXCAVATION PLAN	NH-194808-204
P5	FINISHED GRADING, PIPE LAYOUT, AND WEIR EXCAVATION SURVEY DATA	
P6	RESTORATION PLAN	NH-194808-206
P7	SECTIONS AND DETAILS	NH-194808-207
P8	SECTIONS AND DETAILS	NH-194808-208
P9	RAMP SECTIONS	NH-194808-209
P10	SECTIONS AND DETAILS	NH-194808-210
P11	WEIR SECTIONS	NH-194808-211
P12	DEWATERING CLEANOUT AND RISER SECTIONS	NH-194808-212
P13	DEWATERING PIPE SECTIONS AND DETAILS	NH-194808-213
P14	DEWATERING SUMP PLAN AND SECTIONS	NH-194808-214
▲ P15	RIPRAP FLUME AND PLUNGE POOL PLAN AND SECTIONS	NH-194808-215

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Name Darren S. Schwake
Signature
Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DJR | DATE 01/06/11
DGN'R DJR | CHK'D DSS
APP'D & CERT.
FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT
TITLE: 2010 POND 3 SOUTH CONSTRUCTION
INDEX SHEET

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota
XCEL DRAWING NO. NH-194808-201
Sheet No. G1
REV ▲

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REV	DATE	DESCRIPTION	BY	DWN	CHK'D
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0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR

- E — E — E — BURIED ELECTRIC
- DITCH
- DT — DT — DT — DRAIN TILE
- D — D — D — DREDGE DISCHARGE PIPE
- 960 — PROPOSED CONTOURS INDEX
- PROPOSED CONTOURS INTERMEDIATE
- 960 — EXISTING CONTOURS BACKGROUND INDEX
- EXISTING CONTOURS BACKGROUND INTERMEDIATE
- X — X — X — FENCE / SECURITY FENCE
- F-COV — F-COV — FINAL COVER LIMIT
- SL — SL — SL — SLUDGE LINE
- ROADS
- FM — FM — FM — FORCE MAIN
- GEOMEMBRANE/COMPOSITE LINER
- GEOSYNTHETIC CLAY LINER (GCL)
- GRADE BREAK
- DW — DW — DW — DEWATERING PIPES
- LINER CONNECTION
- OHE — OHE — OHE — OVERHEAD ELECTRIC
- P — P — P — P — UNDERGROUND PIPE
- R — R — R — DREDGE RETURN PIPE
- SW — SW — SW — STORM WATER PIPE
- C — T — C — T — BURIED TELEPHONE CABLE
- FINISHED GRADE/TURF
- ASH HAUL ROUTE
- STRIPPING/STRIPPED LIMITS

- CLAY (SECTION)
- CONCRETE
- GRANULAR DRAINAGE MATERIAL (GDM)
- CLASS 5/GRAVEL
- RIP RAP
- EXIST. CLAY (PLAN)
- PROPOSED CLAY (PLAN)

- DEWATERING WELLS/SOIL BORINGS
- MONITORING WELLS
- MH — MANHOLE
- CB — CATCH BASIN
- SSP2-W04 — INCLINED DEWATERING WELLS
- SURVEY MONUMENT
- WATER LEVEL
- CO — CLEAN-OUT
- TEST PITS

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DWN DJR | DATE 01/06/11
DGN'R DJR | CHK'D DSS
APP'D & CERT.
FILMED

FACILITY:
SHERBURNE COUNTY GENERATING PLANT

TITLE:
2010 POND 3 SOUTH CONSTRUCTION

GENERAL LEGEND

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO.

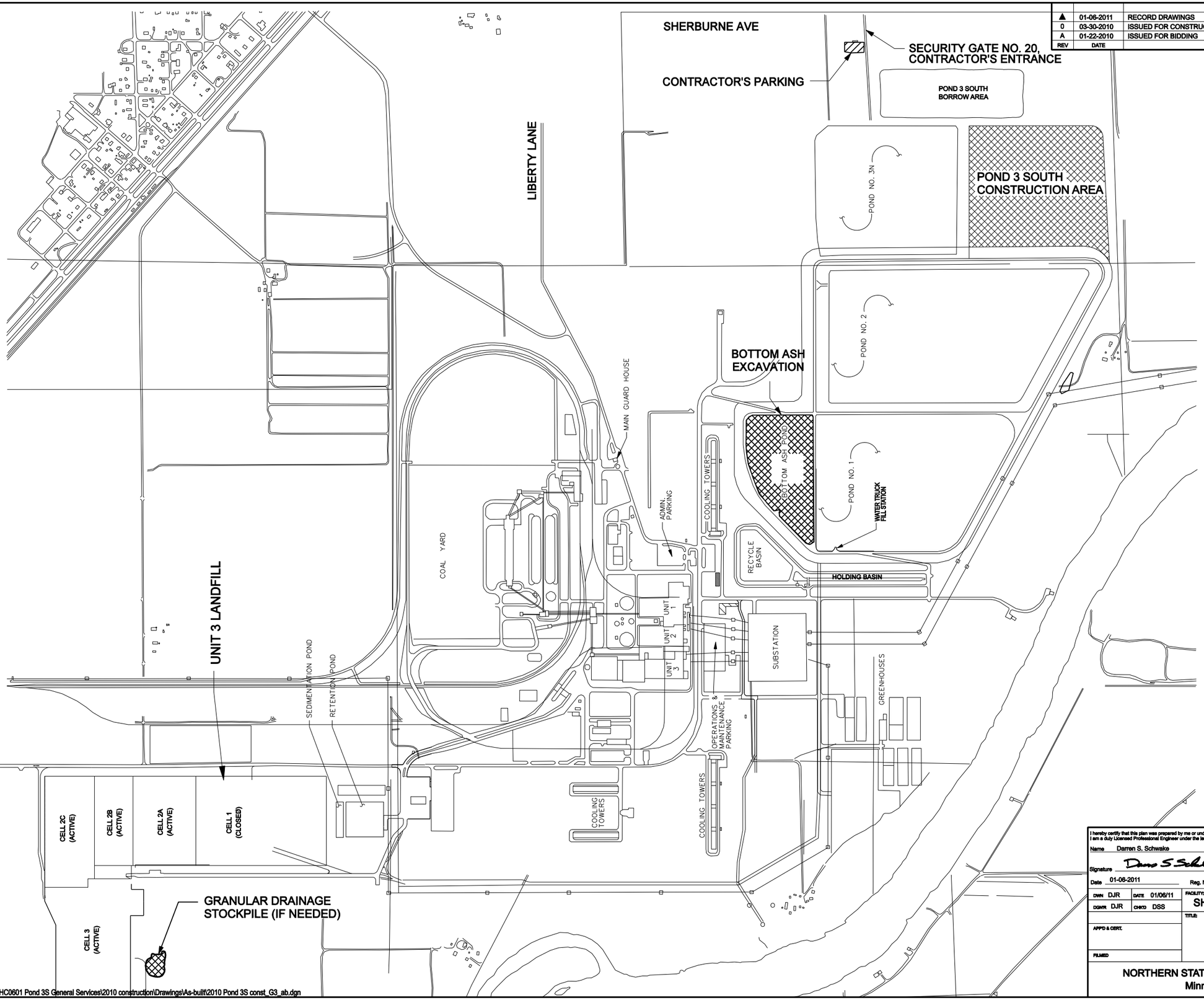
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0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR



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Maple Plain, MN 55359
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fx 952-346-3901

DWN DJR DATE 01/06/11

DGN'R DJR CHK'D DSS

APP'D & CERT.

FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: 2010 POND 3 SOUTH CONSTRUCTION

PLANT LAYOUT AND PROJECT AREAS

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO.

Sheet No. G3

REV ▲

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REV	DATE	DESCRIPTION	BY	DWN	CHK'D
▲	01-06-2011	RECORD DRAWINGS	DJR	DJR	DSS
0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR

BOTTOM ASH POND

POND 1

POND 2

POND 3N

POND 3S

DISCHARGE PIPING VAULT

RIP RAP STOCKPILE

UNDERGROUND UTILITIES

P130

CONTRACTOR SHALL BRIDGE OVER DREDGE RETURN PIPE (IF NEEDED)

DREDGE RETURN PUMP (BY OTHERS)

POND 3N DISCHARGE STRUCTURES

POND 2 DISCHARGE STRUCTURE

POND 2 DECANT STRUCTURE

CONTRACTOR SHALL BRIDGE OVER DREDGE DISCHARGE PIPE (IF NEEDED)

▲ TWO 8 IN. PUMPS TO TRANSFER WATER FROM POND 3N TO POND 3S

▲ N 863,180 APPROX. SOUTH LIMIT OF BORROW AREA

LIMITS OF PREVIOUSLY STRIPPED TOPSOIL, STRIP TOPSOIL OUTSIDE THIS LIMIT AS NEEDED TO DEVELOP BORROW AREA

CONTRACTOR'S PARKING AREA

CONTRACTOR'S STAGING AREA

CONTRACTOR LAY-DOWN AREA

IRRIGATION WELL W-19

POND 3 CONSTRUCTION TRAILER

SECURITY GATE 20, CONTRACTOR'S SITE ENTRANCE

137TH ST.

BECKER SUB-STATION

SURVEY MONUMENT
N 864,720.82
E 2,033,076.44
Elev. 961.32

TEMPORARY POWER SOURCE

EAST TOPSOIL STOCKPILE

SHERBURNE AVE

SURVEY MONUMENT
N 863,276.26
E 2,033,082.00
Elev. 962.86

RF BORROW AREA BRKLN
N 864,656.2
E 2,032,287.7
Elev. 941.0

RF BORROW AREA BRKLN
N 864,656.2
E 2,032,436.5
Elev. 944.0

RF BORROW AREA BRKLN
N 864,656.2
E 2,032,656.5
Elev. 940.0

(3H:1V TYP)

TOPSOIL DEPTH: 1.1'

TOPSOIL DEPTH: 3.1'

TOPSOIL DEPTH: 1.2'

TOPSOIL DEPTH: 0.9'

TOPSOIL DEPTH: 1.5'

TOPSOIL DEPTH: 1.3'

RANDOM FILL BORROW AREA

GRANULAR DRAINAGE MATERIAL STOCKPILES, USE FOR POND 3S

BRUSH PILE

SOUTH TOPSOIL STOCKPILE, USE FOR CONSTRUCTION

SSP2-W03

SSP2-W04

SSP2-W05

SSP2-W06

SSP2-W07

SSP2-W08

SSP2-W11 ABANDONED

P132

N

0 200 400
SCALE IN FEET

NOTE:
EXISTING TOPOGRAPHY IS COMPILED FROM A VARIETY OF SOURCES AND DATES, AND IS SHOWN HERE FOR GENERAL LAYOUT INFORMATION. TOPOGRAPHY OUTSIDE PROJECT AREAS MAY NOT REFLECT THE CURRENT CONDITIONS.

NOT ALL UNDERGROUND UTILITIES SHOWN.

CONTRACTOR SHALL PROPERLY DISPOSE OF ORGANIC DEBRIS AND OVERSIZE (+ 12") ROCK PILES LOCATED EAST AND SOUTHEAST OF GRANULAR DRAINAGE STOCKPILES, RESPECTIVELY.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Name Darren S. Schwake
Signature
Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
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fx 952-346-3901

DWN DJR DATE 01/06/11
DGN'R DJR CHK'D DSS
APP'D & CERT.
FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: 2010 POND 3 SOUTH CONSTRUCTION

POND PROJECTS LAYOUT

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO.

Sheet No. G4

REV ▲

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0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR

RECYCLE BASIN

866,000 N

865,750 N

865,500 N

865,250 N

2,027,500 E

2,028,000 E

2,028,250 E

℄ DIRT ROAD

DISCHARGE STRUCTURE

SHEET PILE WING WALLS

EXCAVATION AREA

#31 BAL PIPE

#32 BAL PIPE

#1 BAL PIPE

#2 BAL PIPE

EXIST. 3" P.E. DEWATERING DISCHARGE PIPE

DREDGE RETURN PIPE ALIGNMENT (BY OTHERS)

DREDGE DISCHARGE PIPE ALIGNMENT (BY OTHERS)

NOTES:

1. EASTERN LIMIT OF EXCAVATION MUST LEAVE ADEQUATE ASH ADJACENT TO PIPE SUPPORTS FOR STABILITY OF PIPE.

2. EXISTING TOPOGRAPHY IS COMPILED FROM PREVIOUS SURVEYS TO APPROXIMATE THE EXISTING CONDITIONS AT THE TIME OF CONSTRUCTION, AND ARE SHOWN HERE FOR GENERAL LAYOUT INFORMATION, BUT SHOULD NOT BE USED FOR QUANTITY TAKE-OFF.

0 50 100

SCALE IN FEET

N

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Name Darren S. Schwake

Signature

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fx 952-346-3901

DWN DJR	DATE 01/06/11	FACILITY: SHERBURNE COUNTY GENERATING PLANT	
DGN'R DJR	CHK'D DSS	TITLE: 2010 POND 3 SOUTH CONSTRUCTION	
APP'D & CERT.		BOTTOM ASH POND EXISTING CONDITIONS	
FILMED			

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO.

Sheet No. BA1

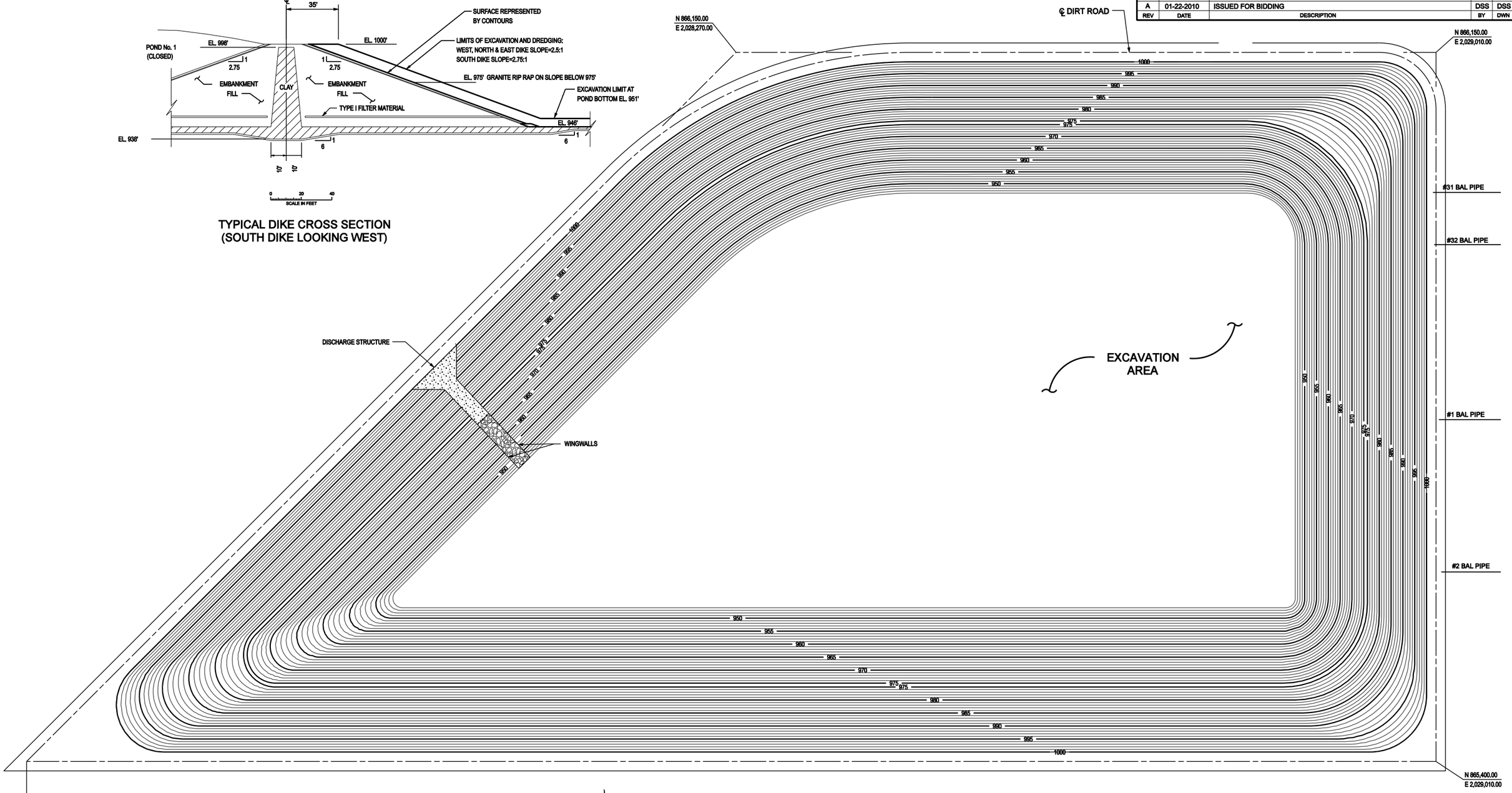
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REV	DATE	DESCRIPTION	BY	DWN	CHK'D
▲	01-06-2011	RECORD DRAWINGS	DJR	DJR	DSS
0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR

TYPICAL DIKE CROSS SECTION (SOUTH DIKE LOOKING WEST)



NOTES:

1. CONTRACTOR SHALL NOT EXCAVATE BELOW BASE GRADES

2. EASTERN LIMIT OF EXCAVATION MUST LEAVE ADEQUATE ASH ADJACENT TO PIPE SUPPORTS FOR STABILITY OF PIPE.

3. EXISTING TOPOGRAPHY IS COMPILED FROM PREVIOUS SURVEYS TO APPROXIMATE THE EXISTING CONDITIONS AT THE TIME OF CONSTRUCTION, AND ARE SHOWN HERE FOR GENERAL LAYOUT INFORMATION, BUT SHOULD NOT BE USED FOR QUANTITY TAKE-OFF.

N

0 50 100
SCALE IN FEET

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Name Darren S. Schwake
Signature
Date 01-06-2011 Reg. No. 24730

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5300 Highway 12
Maple Plain, MN 55359
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fx 952-346-3901

DWN DJR | DATE 01/06/11
DGN'R DJR | CHK'D DSS
APP'D & CERT.
FILMED

FACILITY:
SHERBURNE COUNTY GENERATING PLANT

TITLE:
2010 POND 3 SOUTH CONSTRUCTION

BOTTOM ASH POND
BASE GRADES

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO.
Sheet No. BA2
REV ▲

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REV	DATE	DESCRIPTION	BY	DWN	CHK'D
▲	01-06-2011	RECORD DRAWINGS	DJR	DJR	DSS
0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR

POND 3N

POND 2

TOP OF POND 2 CLAY BARRIER

EDGE OF EXIST. POND 3N COMPOSITE LINER

CONNECT TO EXISTING POND 3N COMPOSITE LINER

TOP OF EXIST. POND 3N CLAY BARRIER

PROPOSED LINER EDGE

EXIST. POND 2 DEWATERING WELLS

SSP2-W06

SSP2-W07

SSP2-W08

SSP2-W09

PROPOSED LINER EDGE

PROPOSED LINER EDGE

STRIP AND STOCKPILE EXIST. TOPSOIL (6")

GRANULAR DRAINAGE MATERIAL STOCKPILES

TREE/BRUSH PILE

WASTE ROCK PILE

SOUTH TOPSOIL STOCKPILE, USE FOR CONSTRUCTION

INFILTRATION POND

PERIMETER ROAD

P132.2

P108

PROTECT MONITORING WELL (TYP)

N

0 100 200

SCALE IN FEET

NOTES: EXISTING TOPOGRAPHY FROM AERIAL SURVEY ON DECEMBER 5, 2009 BY AERO-METRIC, INC.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Darren S. Schwake

Signature

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fx 952-346-3901

DWN DJR DATE 01/06/11

DGN'R DJR CHK'D DSS

APP'D & CERT.

FILMED

FACILITY:
SHERBURNE COUNTY GENERATING PLANT

TITLE:
2010 POND 3 SOUTH CONSTRUCTION

EXISTING CONDITIONS AND PROPOSED LINER LIMITS

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO.

Sheet No. P1

REV ▲

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REV	DATE	DESCRIPTION	BY	DWN	CHK'D
▲	01-06-2011	RECORD DRAWINGS	DJR	DJR	DSS
0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR

POND 3N

POND 2

TOP OF POND 2 CLAY BARRIER

EDGE OF EXIST. POND 3N COMPOSITE LINER

CONNECT TO EXISTING POND 3N COMPOSITE LINER

TOP OF EXIST. POND 3N CLAY BARRIER

AS-BUILT LINER EDGE

SCARIFY UPPER 6" OF EXIST. CLAY ANCHOR AND CONNECT NEW CLAY ANCHOR

BORROW AREA

COMPOSITE LINER EDGE

TOP OF CLAY ANCHOR

SCARIFY UPPER 6" OF POND 2 CLAY BARRIER AND CONNECT CLAY ANCHOR

SSP2-W06

SSP2-W07

SSP2-W08

SSP2-W09

TRIPLE 18" CMP CULVERTS, 45 LF EACH (135 LF TOTAL):

NORTH END: N 982,188.8 ~~N 982,188.8~~
E 2,036,396.4 ~~E 2,036,396.4~~
EL. 957.0 ~~EL. 957.0~~

SOUTH END: N 982,141.9 ~~N 982,141.9~~
E 2,036,397.2 ~~E 2,036,397.2~~
EL. 956.5 ~~EL. 956.5~~

▲ SEE SHEET P4A FOR CULVERT AS-BUILT COORDINATES

PLACE 12" OF ON-SITE RIPRAP (SEE SHT G4) AT CMP OUTLETS IN ACCORDANCE WITH MnDOT STANDARD PLATE No. 3134C, SUBSTITUTE WOVEN GEOTEXTILE FOR GRANULAR FILTER BLANKET IN ACCORDANCE WITH NOTE 2 OF STD. PLATE

P132

P108

PROTECT MONITORING WELL (TYP)

NOTES:

EXISTING TOPOGRAPHY FROM AERIAL SURVEY ON DECEMBER 5, 2009 BY AERO-METRIC, INC.

PROPOSED AND EXISTING CONTOURS INSIDE THE LINER EDGE REPRESENT LINER GRADES, PROPSED CONTOURS OUTSIDE THE LINER EDGE REPRESENT FINISHED GRADES (SEE FINISHED GRADING PLAN, SHT P4)

WHERE PROPOSED LINER CONTOURS ARE NOT SHOWN INSIDE THE POND, THE EXISTING GROUND WAS PREVIOUSLY GRADED TO THE PROPOSED LINER GRADES. THE CONTRACTOR SHALL FINE GRADE, REPAIR EROSION DAMAGE, AND PREPARE SUBGRADE FOR LINER INSTALLATION IN ACCORDANCE WITH SECTION 02220 OF THE TECHNICAL SPECIFICATIONS

N

0 100 200
SCALE IN FEET

▲ THIS SHEET REPRESENTS DESIGN DATA. REFER TO APPENDIX G FOR AS-BUILT SUBGRADE/LINER GRID POINT DRAWINGS AND TABULATIONS. ALL POINTS WERE CONSTRUCTED WITHIN TOLERANCE UNLESS NOTED.

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Name Darren S. Schwake

Signature Darren S. Schwake

Date 01-06-2011 Reg. No. 24730

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fx 952-346-3901

DWN DJR DATE 01/06/11
DGN'R DJR CHK'D DSS
APP'D & CERT.
FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: 2010 POND 3 SOUTH CONSTRUCTION

LINER GRADING PLAN AND CLAY ANCHOR ALIGNMENT

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO. NH-194808-202

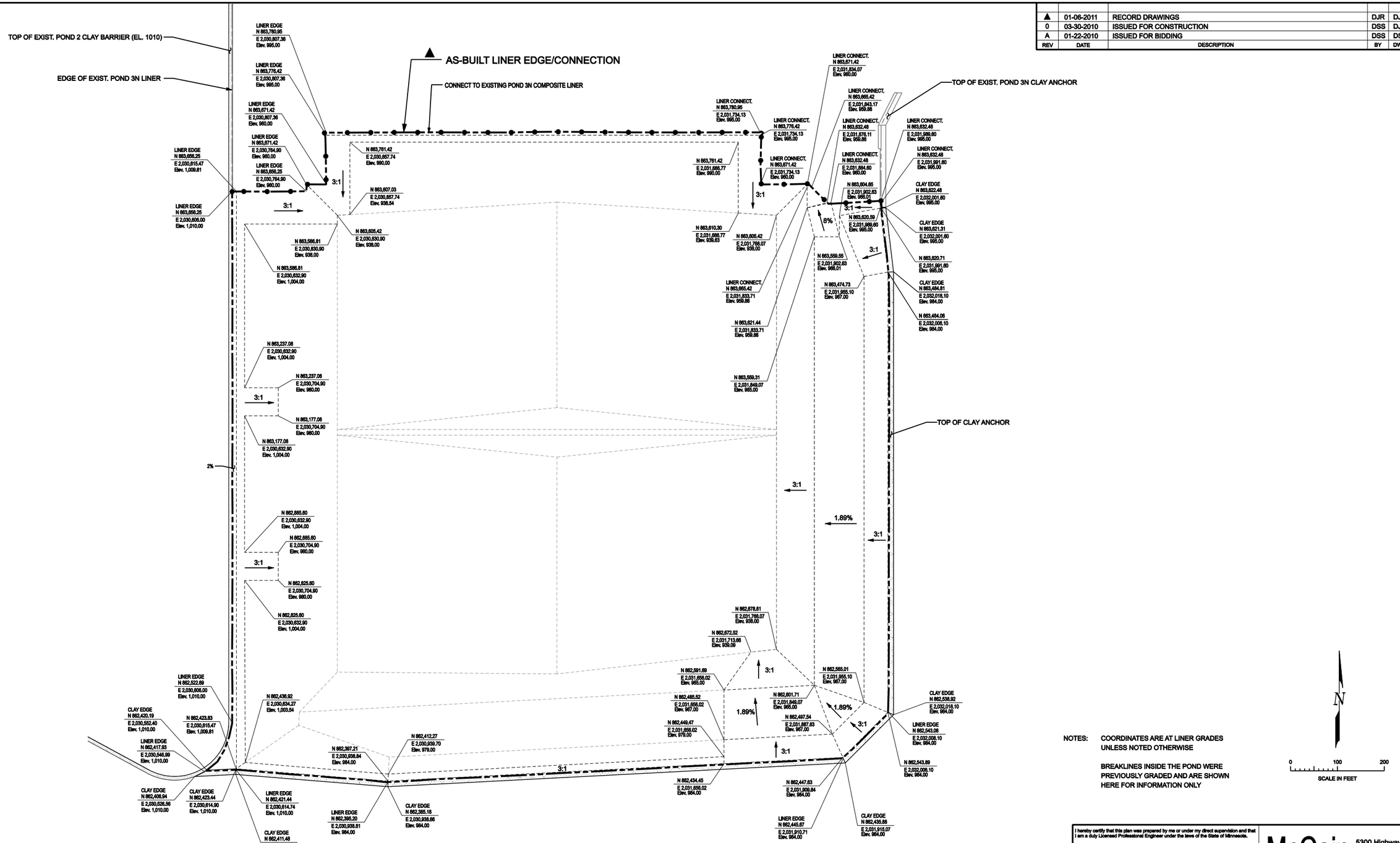
Sheet No. P2

REV ▲

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File: Default , P:\Projects\XCEL\SHC0601 Pond 3S General Services\2010 construction\Drawings\As-built\2010 Pond 3S const_P02_ab.dgn

REV	DATE	DESCRIPTION	BY	DWN	CHK'D
▲	01-06-2011	RECORD DRAWINGS	DJR	DJR	DSS
0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR



NOTES:
COORDINATES ARE AT LINER GRADES UNLESS NOTED OTHERWISE

BREAKLINES INSIDE THE POND WERE PREVIOUSLY GRADED AND ARE SHOWN HERE FOR INFORMATION ONLY

N

0 100 200
SCALE IN FEET

▲ THIS SHEET REPRESENTS DESIGN DATA. REFER TO APPENDIX G FOR AS-BUILT SUBGRADE/LINER GRID POINT DRAWINGS AND TABULATIONS. ALL POINTS WERE CONSTRUCTED WITHIN TOLERANCE UNLESS NOTED.

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Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DJR DATE 01/06/11
DGN'R DJR CHK'D DSS
APP'D & CERT.
FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: 2010 POND 3 SOUTH CONSTRUCTION

LINER AND CLAY ANCHOR ALIGNMENT SURVEY DATA

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO. NH-194808-203
Sheet No. P3
REV ▲

Plotted: 1/12/2011 , 11:08:54 AM Plotter, Driver: Adobe PDF , P:\MAI Standards\Microstation\Plot Drivers\MAI-Printer-half-Ricoh B&W.plt

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REV	DATE	DESCRIPTION	BY	DWN	CHK'D
▲	01-06-2011	RECORD DRAWINGS	DJR	DJR	DSS
0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR

POND 3N

CONSTRUCTED BOTTOM ASH RAMP ▲ INTO POND 3N, SEE SHEET P4A

EXCAVATE RANDOM FILL AND REMOVE GEOMEMBRANE FLAP TO CREATE WEIR BETWEEN POND 3S AND EXISTING POND 3N AFTER COMPANY TRANSFERS WATER FROM 3N TO 3S. USE EXCAVATED SOIL AS DIRECTED BY COMPANY, REFER TO SECTION 01010 OF THE TECHNICAL SPECIFICATIONS FOR PHASING DETAILS.

EXCAVATED TO TOP OF LOWER FLAP ▲ AT ELEV. 972, SEE SHEET P4A

CONSTRUCT 10' WIDE, 10% RAMP INTO POND 3N USING BOTTOM ASH.

~~ADD CLASS 5 TO EXIST. HAUL ROAD, SEE SHEET P6~~ ▲

POND 2

SSP2-W06

SSP2-W07

SSP2-W08

SSP2-W09

40 LF 12" CMP CULVERT CENTERED ON DEWATERING LATERAL

~~40 LF 12" CMP CULVERT CENTERED ON DEWATERING LATERAL~~ ▲

50 LF 12" CMP CULVERT CENTERED ON DEWATERING LATERAL

2' DEEP, 6' WIDE V-DITCH

▲ 2 FT OF GRANULAR DRAINAGE MATERIAL PLACED BETWEEN COMPOSITE LINER AND DEWATERING HEADER PIPE RUBSHEET, SEE SHEET P4A AND

CONSTRUCTED INTERIOR BENCH TO HIGHER ELEVATION DUE TO BETTER THAN EXPECTED BOTTOM ASH YIELD, SEE SHEET P4A

CONSTRUCT 25' WIDE, 8% RAMP USING BOTTOM ASH

TRIPLE 18" CMP CULVERTS, 45 LF EACH (135 LF TOTAL):

NORTH END: ~~N 992,168.6~~ ~~E 2,036,396.4~~ ~~EL. 957.0~~

SOUTH END: ~~N 992,141.9~~ ~~E 2,036,397.2~~ ~~EL. 956.5~~

PLACE 12" OF ON-SITE RIPRAP AT CMP OUTLETS IN ACCORDANCE WITH MnDOT STANDARD PLATE No. 3134C, SUBSTITUTE WOVEN GEOTEXTILE FOR GRANULAR FILTER BLANKET IN ACCORDANCE WITH NOTE 2

▲ SEE SHEET P4A FOR CULVERT AS-BUILT COORDINATES

PROTECT MONITORING WELL (TYP)

P108

P132

NOTES:

EXISTING TOPOGRAPHY FROM AERIAL SURVEY ON DECEMBER 5, 2009 BY AERO-METRIC, INC.

PROPOSED CONTOURS REPRESENT FINISHED GRADES (SEE CROSS SECTIONS FOR DETAILS)

PROPOSED CONTOURS NOT SHOWN ON POND BOTTOM, PLACE 2 FEET OF GRANULAR DRAINAGE MATERIAL OVER LINER GRADES AS DETERMINED BY CONTRACTOR'S VERIFICATION SURVEY

0 100 200
SCALE IN FEET

▲ THIS SHEET SHOWS THE ORIGINAL DESIGN GRADES AND PIPE LAYOUT, SEE SHEET P4A FOR AS-BUILT FINISHED GRADES AND PIPE ALIGNMENT

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Darren S. Schwake

Signature

Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DJR DATE 01/06/11
DGN'R DJR CHK'D DSS
APP'D & CERT.
FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: 2010 POND 3 SOUTH CONSTRUCTION

FINISHED GRADING PLAN, PIPE LAYOUT, AND WEIR EXCAVATION PLAN

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO.

Sheet No. P4

REV ▲

Plotted: 1/12/2011, 11:09:16 AM Plotter, Driver: Adobe PDF, P:\MAI Standards\Microstation\Plot Drivers\MAI-Printer-half-Ricoh B&W.plt

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REV	DATE	DESCRIPTION	BY	DWN	CHK'D
▲	01-06-2011	RECORD DRAWINGS	DJR	DJR	DSS

POND 3N

TWO 8 IN. PUMPS TO TRANSFER WATER FROM POND 3N TO POND 3S FOR WATER BALANCE ▲

EXCAVATE RANDOM FILL AND REMOVE GEOMEMBRANE FLAP TO CREATE WEIR BETWEEN POND 3S AND EXISTING POND 3N AFTER COMPANY TRANSFERS WATER FROM 3N TO 3S. USE EXCAVATED SOIL AS DIRECTED BY COMPANY, REFER TO SECTION 01010 OF THE TECHNICAL SPECIFICATIONS FOR PHASING DETAILS.

CONSTRUCT 10' WIDE, 10% RAMP INTO POND 3N USING BOTTOM ASH.

ADD CLASS 5 TO EXIST. HAUL ROAD, SEE SHEET P6 ▲

BOTTOM ASH RAMP ▲

RIPRAP FLUME AND PLUNGE POOL, SEE SHEET P15 ▲

8 IN. BOTTOM ASH DREDGE DISCHARGE PIPE ▲

40 LF 12" CMP CULVERT CENTERED ON DEWATERING LATERAL

40 LF 12" CMP CULVERT CENTERED ON DEWATERING LATERAL ▲

BORROW AREA

POND 2

REVISED DEWATERING PIPE ALIGNMENT, SEE ▲

REVISED DEWATERING PIPE ALIGNMENT, SEE ▲

2' DEEP, 6' WIDE V-DITCH

50 LF 12" CMP CULVERT CENTERED ON DEWATERING LATERAL

40 LF 12" CMP CULVERT CENTERED ON DEWATERING LATERAL

40 LF 12" CMP CULVERT CENTERED ON DEWATERING LATERAL

2 FT OF GRANULAR DRAINAGE MATERIAL PLACED BETWEEN COMPOSITE LINER AND DEWATERING HEADER PIPE RUBSHEET, SEE 7,8/P13 ▲

GRANULAR DRAINAGE MATERIAL STOCKPILES USED DURING POND 3S CONSTRUCTION

REVISED CLEANOUT ALIGNMENT ▲

CONSTRUCT 25' WIDE, 8% RAMP USING BOTTOM ASH

INFILTRATION POND

TRIPLE 18" CMP CULVERTS, 45 LF EACH (135 LF TOTAL):

PLACE 12" OF ON-SITE RIPRAP AT CMP OUTLETS IN ACCORDANCE WITH MnDOT STANDARD PLATE No. 3134C, SUBSTITUTE WOVEN GEOTEXTILE FOR GRANULAR FILTER BLANKET IN ACCORDANCE WITH NOTE 2

POND 3 SOUTH PERIMETER ROAD EXTENDED APPROXIMATELY 200 FT. EAST TO CAPTURE AND ROUTE STORMWATER FROM THE SOUTH END OF EAST SLOPE INTO INFILTRATION POND. ▲

PROTECT MONITORING WELL (TYP)

P132

P108

	WEST CULV. N. END	WEST CULV. S. END	MIDDLE CULV. N. END	MIDDLE CULV. S. END	EAST CULV. N. END	EAST CULV. S. END
NORTH.	862,188.8	862,141.8	862,188.5	862,141.6	862,188.5	862,141.7
EAST.	2,030,392.4	2,030,392.6	2,030,396.2	2,030,396.3	2,030,400.1	2,030,400.4
INV. ELEV.	957.18	956.12	957.09	956.25	957.18	956.46

▲ AS-BUILT CULVERT LOCATIONS AND ELEVATIONS

NOTES:

▲ EXISTING TOPOGRAPHY OUTSIDE OF THE CONSTRUCTION AND BORROW AREA ARE FROM AERIAL SURVEY ON NOVEMBER 20, 2010 BY AERO-METRIC, INC.

▲ CONTOURS IN THE 2010 CONSTRUCTION AREA ARE FROM THE AS-BUILT CONSTRUCTION SURVEY OF THE FINISHED GRADES

N

0 100 200
SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Darren S. Schwake

Signature

Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN	DJR	DATE	01/06/11
DGN'R	DJR	CHK'D	DSS
APP'D & CERT.			
FILMED			

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: 2010 POND 3 SOUTH CONSTRUCTION

AS-BUILT FINISHED GRADING PLAN, PIPE LAYOUT, AND WEIR EXCAVATION PLAN

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO. NH-194808-204

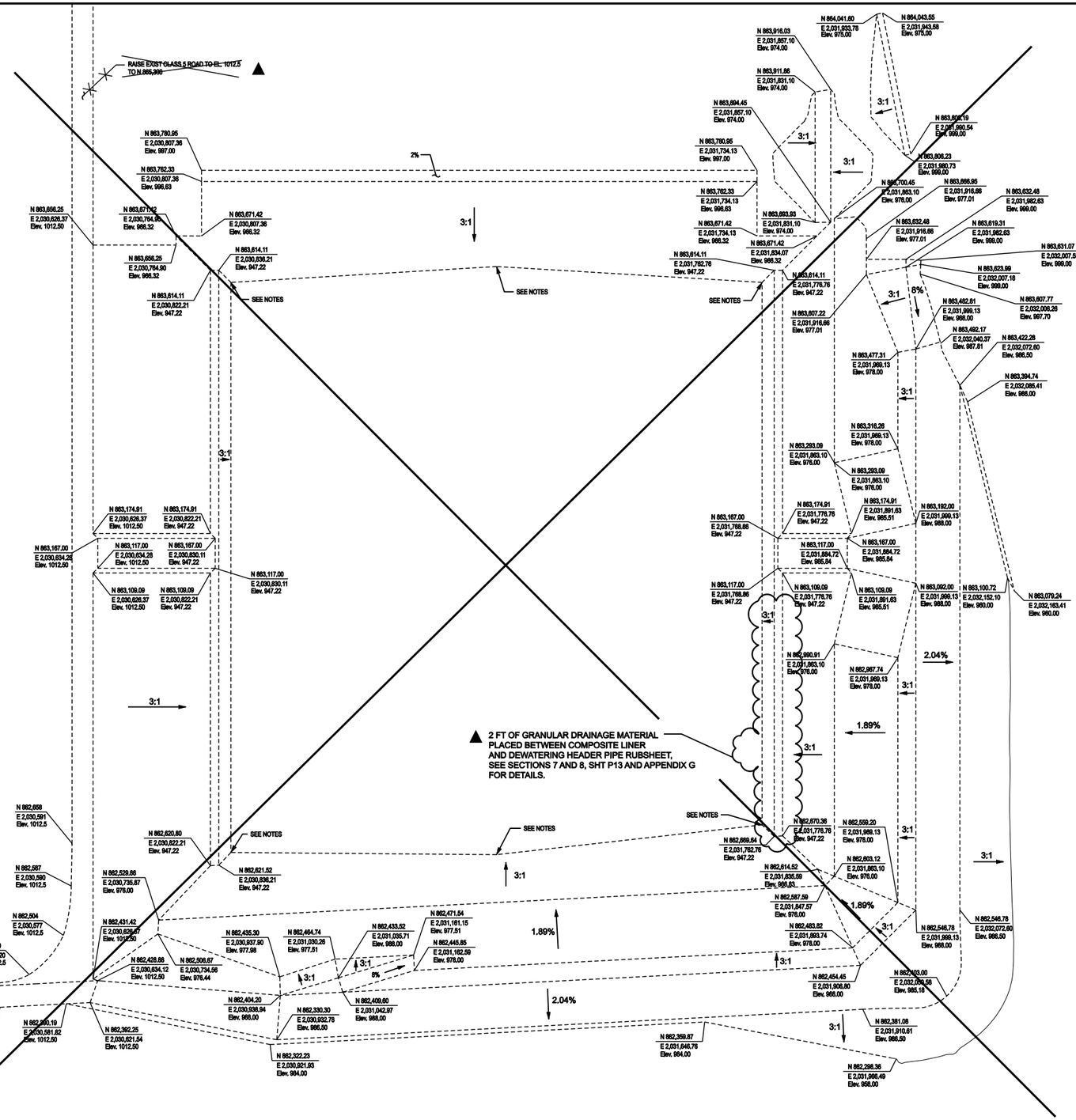
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REV ▲

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0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR



NOTES: COORDINATES ARE AT FINISHED GRADE BREAKLINES, SEE SECTIONS FOR FINISHED GRADE MATERIALS

FINISHED GRADE BREAKLINES AT THE POND BOTTOM SHALL BE DETERMINED BY THE CONTRACTOR BY ADDING THE GRANULAR DRAINAGE MATERIAL THICKNESS TO THE LINER VERIFICATION SURVEY DATA

▲ ~~ADD CLASS 5 TO RAISE EXISTING WEST ROAD TO EL. 1012.5 ALONG ENTIRE WIDTH TO N: 865,300 (COORDINATES ALONG WEST EDGE ARE APPROXIMATE)~~

▲ THIS SHEET SHOWS THE ORIGINAL DESIGN DATA AND DOES NOT REFLECT AS-BUILT CONDITIONS. REFER TO SHEET P4A FOR AS-BUILT FINISHED GRADES AND APPENDIX G FOR AS-BUILT SURVEY DATA.

N

0 100 200
SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Darren S. Schwake

Signature

Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DJR	DATE 01/06/11	FACILITY: SHERBURNE COUNTY GENERATING PLANT	
DGN'R DJR	CHK'D DSS		
		TITLE: 2010 POND 3 SOUTH CONSTRUCTION	
APP'D & CERT.		FINISHED GRADING, PIPE LAYOUT, AND WEIR EXCAVATION SURVEY DATA	
FILMED			

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO. | REV ▲

Sheet No. P5

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0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR

POND 3N

POND 2

RAISE EXIST. CLASS 5 ROAD TO EL. 1012.5 TO N 865,300 (TOP OF EXIST. CLASS 5 ELEV. 1012.0)

RIPRAP FLUME AND PLUNGE POOL, SEE SHEET P15 FOR DETAILS ▲

6 IN. TOPSOIL, TURF AND EROSION BLANKET ON BENCH AND SLOPES OF BORROW AREA ▲

6 IN. CLASS 5 ON ROAD EXTENSION ▲

PROTECT MONITORING WELL (TYP)

LEGEND:

- 6" CLASS 5 GRAVEL
- 6" TOPSOIL, ESTABLISH TURF, EROSION BLANKET
- ~~FINE GRADE TOPSOIL AND REPAIR EROSION DAMAGE, ESTABLISH TURF, EROSION BLANKET~~
- ▲ ESTABLISHED VEGETATION, NO TREATMENT NECESSARY

NOTES:
EXISTING TOPOGRAPHY FROM AERIAL SURVEY ON NOVEMBER 20, 2010 BY AERO-METRIC, INC.

CONTRACTOR SHALL RESTORE OTHER AREAS DISTURBED BY CONSTRUCTION ACTIVITIES

N

0 100 200
SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Name Darren S. Schwake
Signature
Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DJR DATE 01/06/11
DGN'R DJR CHK'D DSS
APP'D & CERT.
FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: 2010 POND 3 SOUTH CONSTRUCTION

RESTORATION PLAN

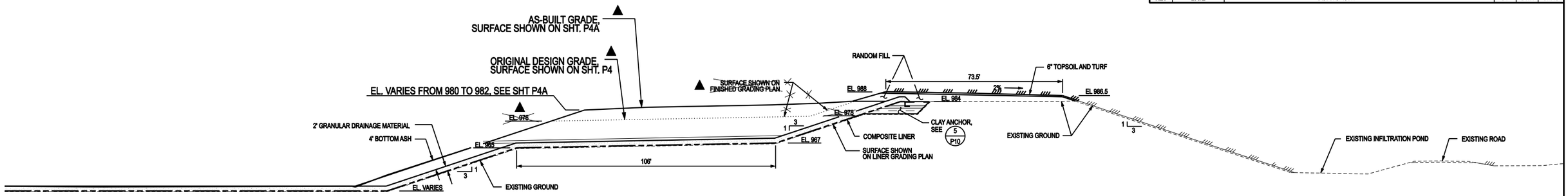
NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO. NH-194808-206
Sheet No. P6
REV ▲

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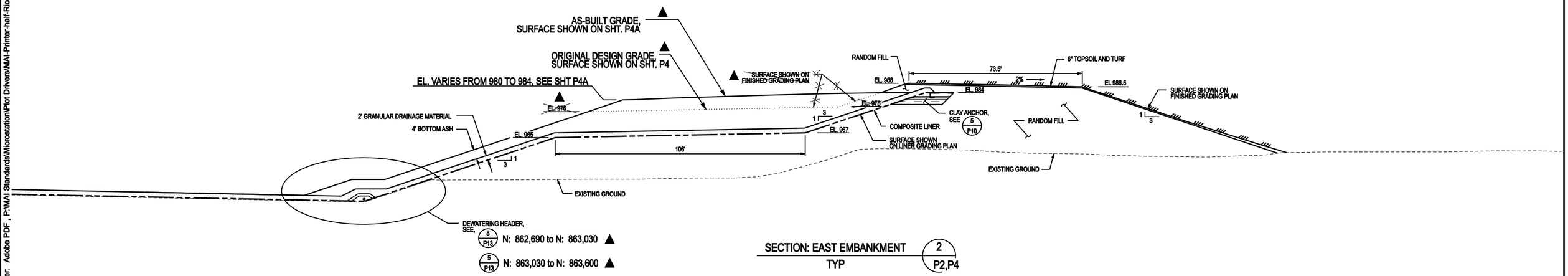
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A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR



SECTION: SOUTH EMBANKMENT 1 / TYP / P2,P4

0 20 40
SCALE IN FEET



SECTION: EAST EMBANKMENT 2 / TYP / P2,P4

0 20 40
SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Name Darren S. Schwake
Signature
Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DJR | DATE 01/06/11
DGN'R DJR | CHK'D DSS
APP'D & CERT.
FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: 2010 POND 3 SOUTH CONSTRUCTION

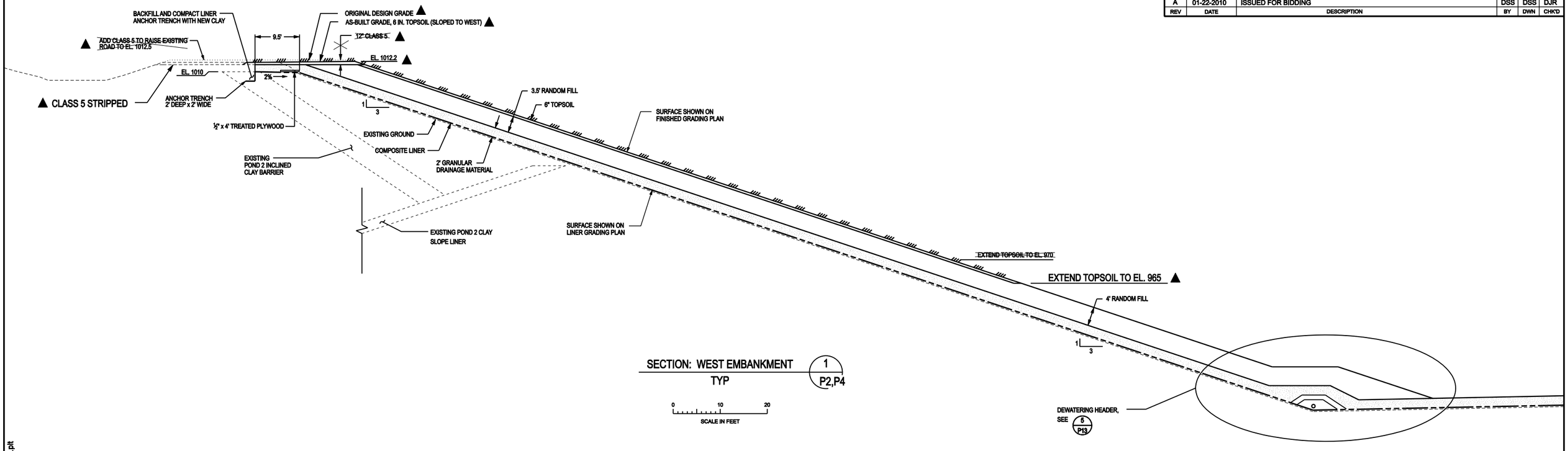
SECTIONS AND DETAILS

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO. NH-194808-207
Sheet No. P7
REV ▲

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A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR

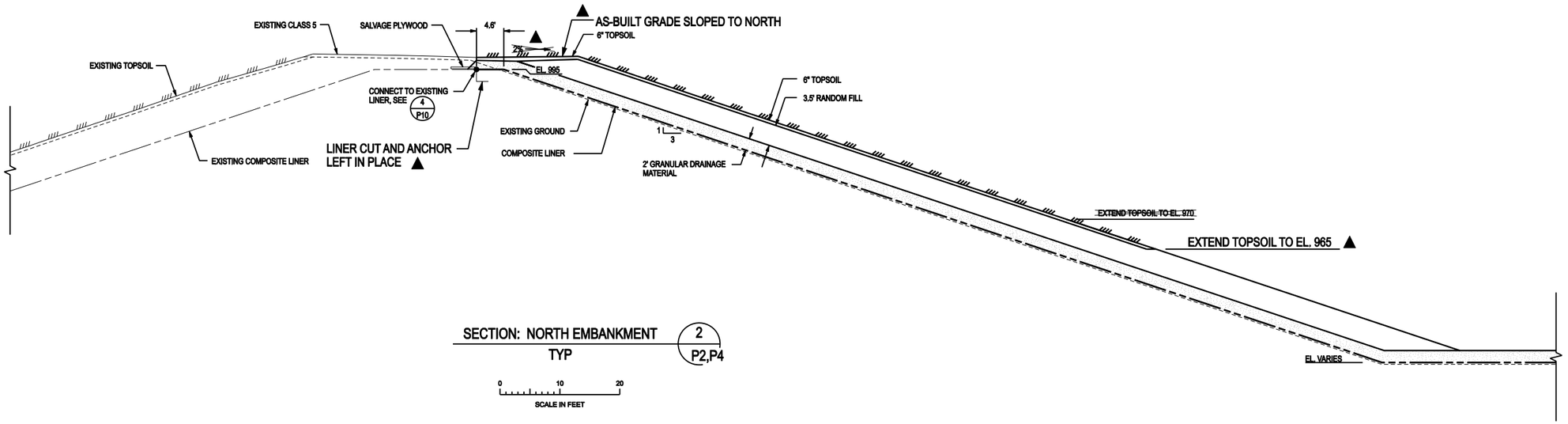


SECTION: WEST EMBANKMENT 1 P2,P4

TYP

0 10 20

SCALE IN FEET



SECTION: NORTH EMBANKMENT 2 P2,P4

TYP

0 10 20

SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Darren S. Schwake

Signature

Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DJR DATE 01/06/11

DGN'R DJR CHK'D DSS

APP'D & CERT.

FILMED

FACILITY:
SHERBURNE COUNTY GENERATING PLANT

TITLE:
2010 POND 3 SOUTH CONSTRUCTION

SECTIONS AND DETAILS

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO. NH-194808-208

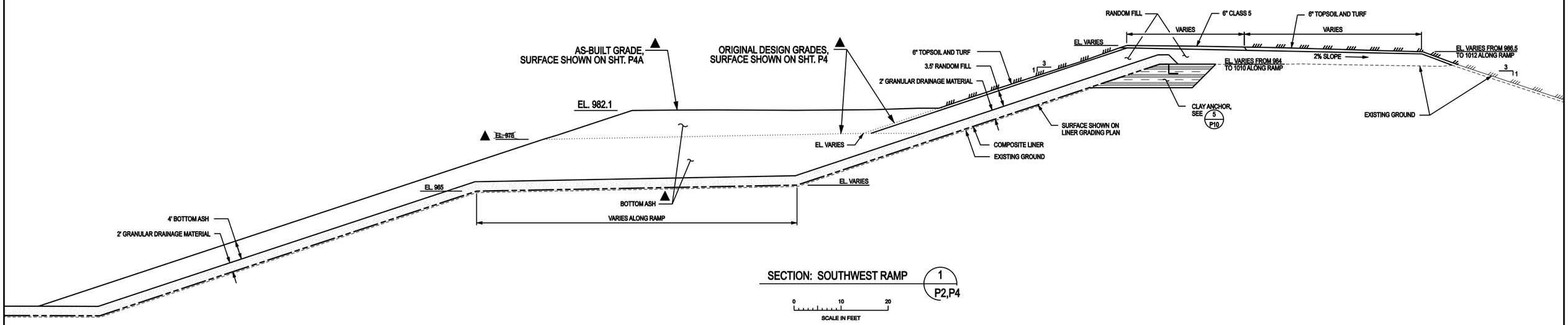
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REV ▲

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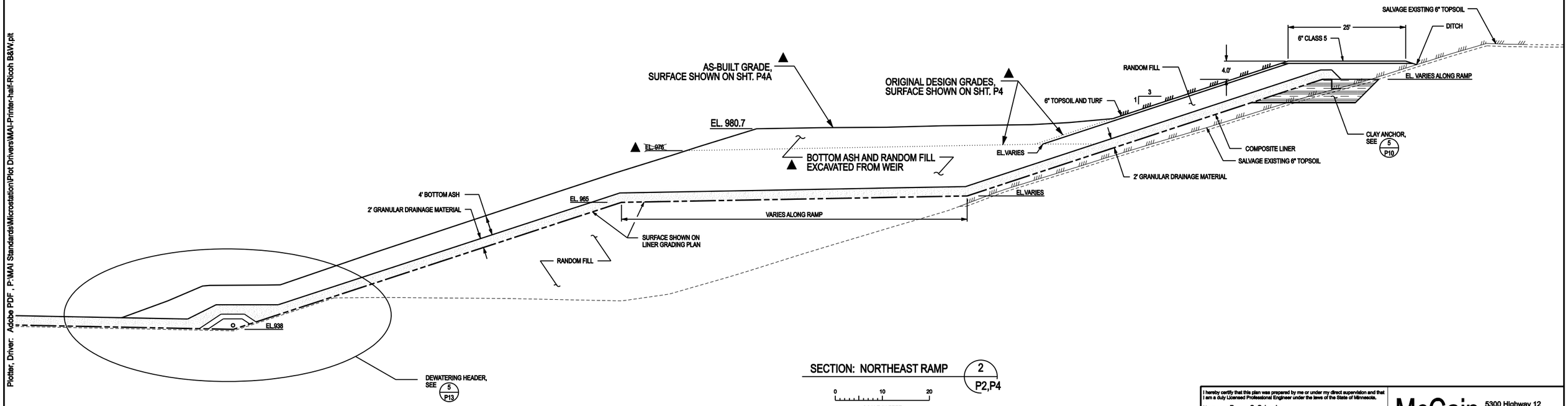
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REV	DATE	DESCRIPTION	BY	DWN	CHK'D
▲	01-06-2011	RECORD DRAWINGS	DJR	DJR	DSS
0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR



SECTION: SOUTHWEST RAMP 1 P2,P4

0 10 20
SCALE IN FEET



SECTION: NORTHEAST RAMP 2 P2,P4

0 10 20
SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Darren S. Schwake

Signature Darren S. Schwake

Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DJR | DATE 01/06/11
DGN'R DJR | CHK'D DSS
APP'D & CERT.
FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: 2010 POND 3 SOUTH CONSTRUCTION

RAMP SECTIONS

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO. NH-194808-209

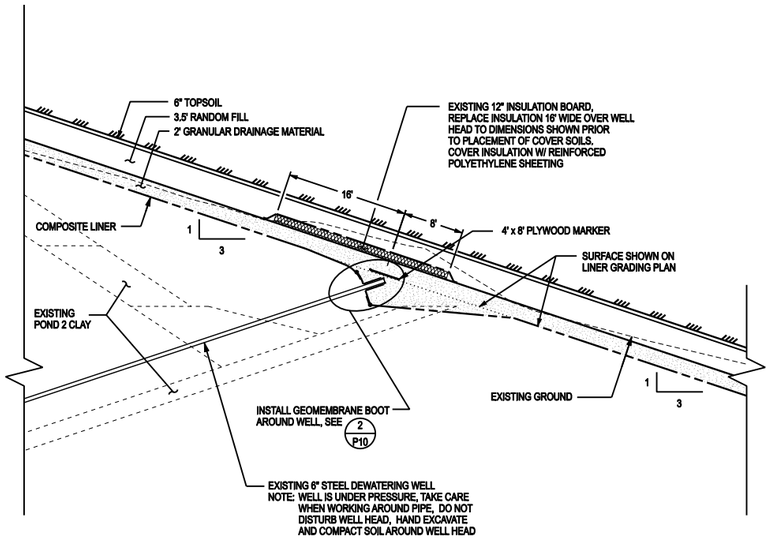
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REV ▲

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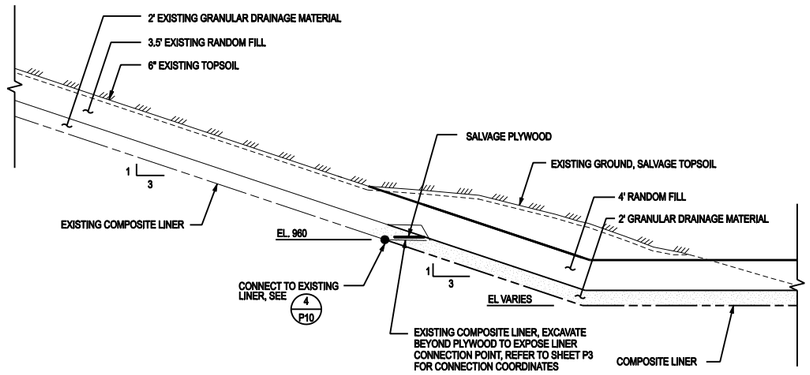
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REV	DATE	DESCRIPTION	BY	DWN	CHK'D
▲	01-06-2011	RECORD DRAWINGS	DJR	DJR	DSS
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A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR



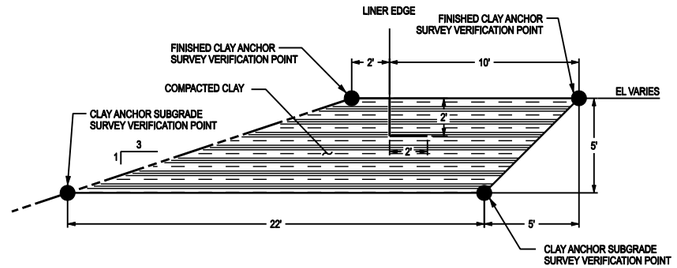
SECTION: POND 2 CONNECTION AT DEWATERING WELL — 1 — P2,P4

0 10 20
SCALE IN FEET



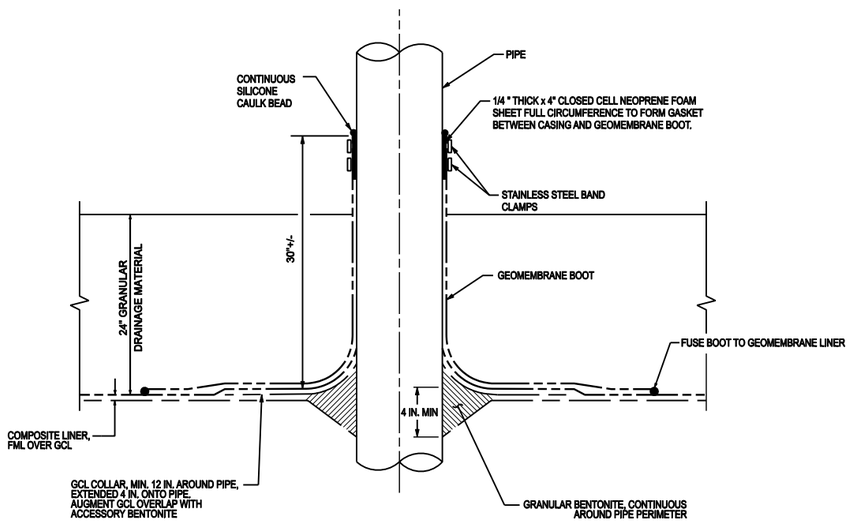
SECTION: NORTH EMBANKMENT MIDSLOPE LINER CONNECTION — 3 — P2,P4
TYP

0 10 20
SCALE IN FEET

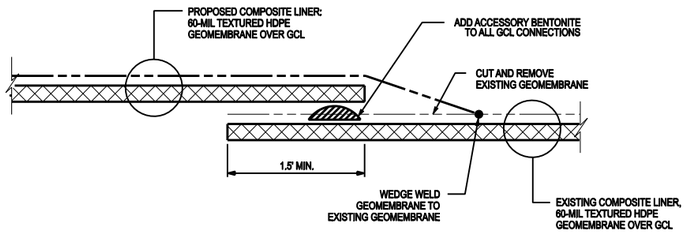


SECTION: CLAY ANCHOR — 5 — P7,P9,P12
TYP

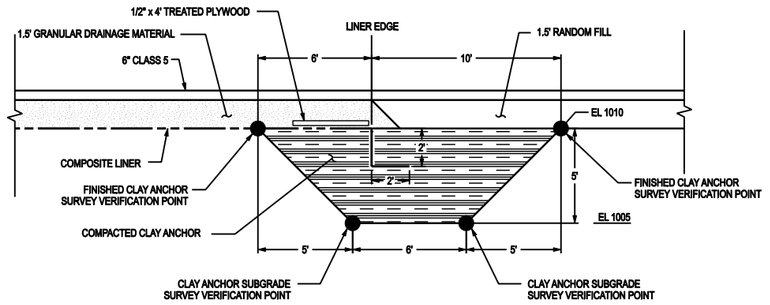
0 4 8
SCALE IN FEET



DETAIL: COMPOSITE LINER BOOT AT POND 2 DEWATERING WELLS — 2 — P10
TYP
NOT TO SCALE



SECTION: COMPOSITE LINER AND COMPOSITE LINER CONNECTION — 4 — P8,P10,P11
NOT TO SCALE



SECTION: CLAY ANCHOR AT SOUTHWEST CORNER — 6 — P2,P4

0 4 8
SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Name Darren S. Schwake
Signature
Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DJR | DATE 01/06/11
DGN'R DJR | CHK'D DSS
APP'D & CERT.
FILMED

FACILITY:
SHERBURNE COUNTY GENERATING PLANT

TITLE:
2010 POND 3 SOUTH CONSTRUCTION

SECTIONS AND DETAILS

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO.
NH-194808-210

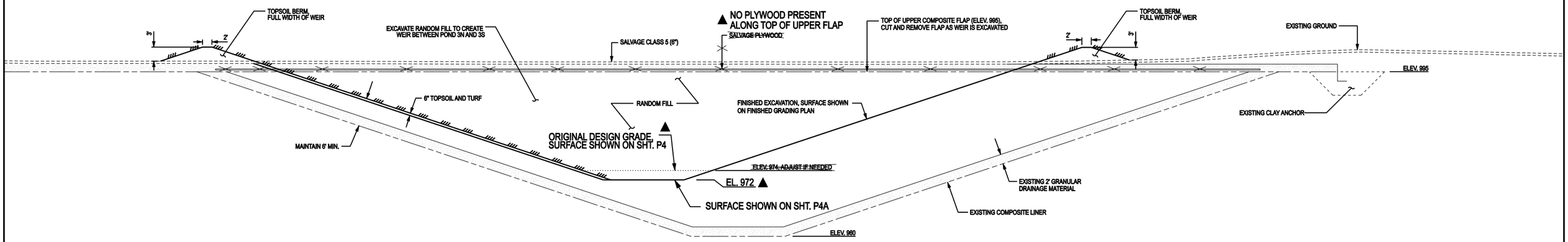
Sheet No. P10

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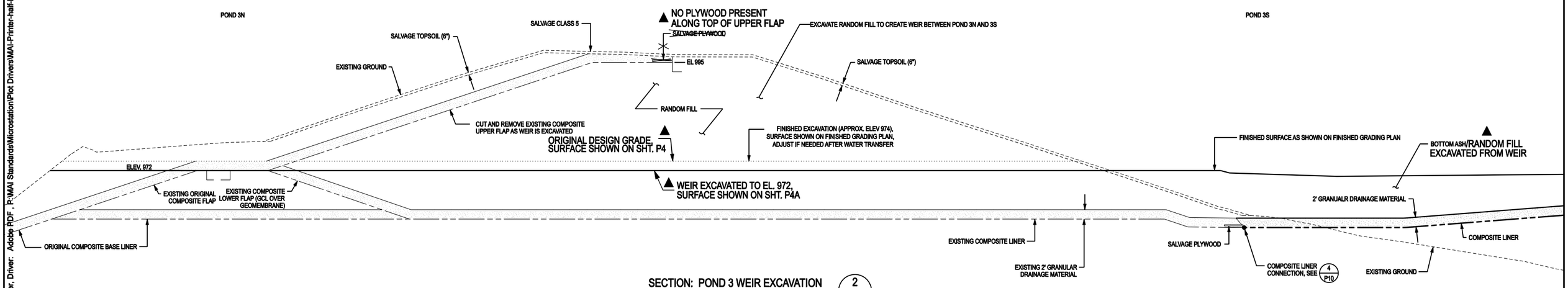
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REV	DATE	DESCRIPTION	BY	DWN	CHK'D
▲	01-06-2011	RECORD DRAWINGS	DJR	DJR	DSS
0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR



SECTION: POND 3 WEIR EXCAVATION — 1 / P4
WEST-EAST LOOKING NORTH

0 10 20
SCALE IN FEET



SECTION: POND 3 WEIR EXCAVATION — 2 / P4
NORTH-SOUTH LOOKING EAST

0 10 20
SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Name Darren S. Schwake
Signature
Date 01-06-2011 Reg. No. 24730

McCain and Associates, Inc.
5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DJR | DATE 01/06/11
DGN'R DJR | CHK'D DSS
APP'D & CERT.
FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT
TITLE: 2010 POND 3 SOUTH CONSTRUCTION
WEIR SECTIONS

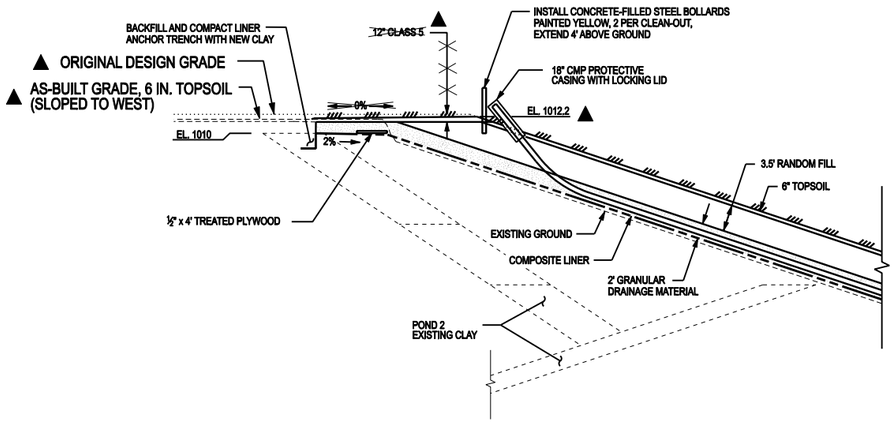
NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO. NH-194808-211
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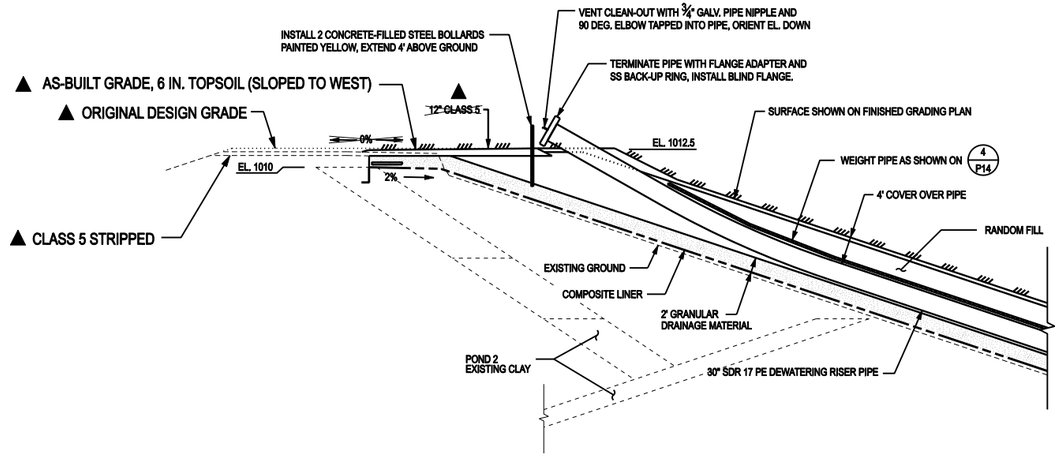
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REV	DATE	DESCRIPTION	BY	DWN	CHK'D
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A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR



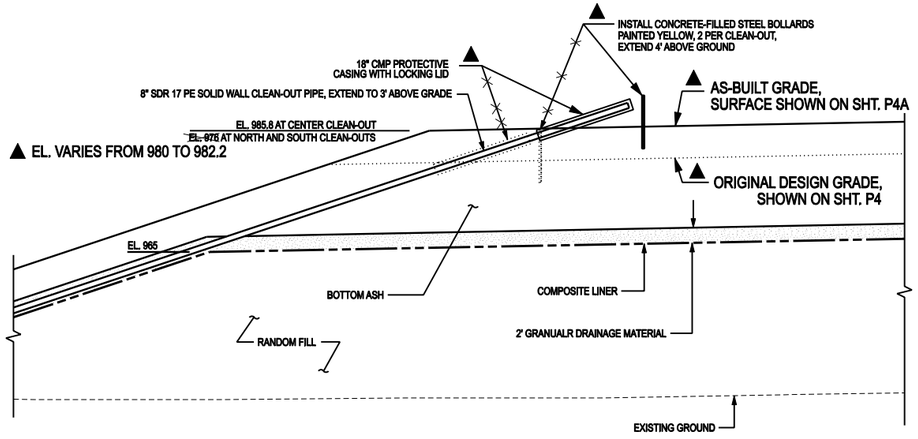
SECTION: WEST EMBANKMENT CLEANOUT (5 TOTAL) 1/P4

0 10 20
SCALE IN FEET



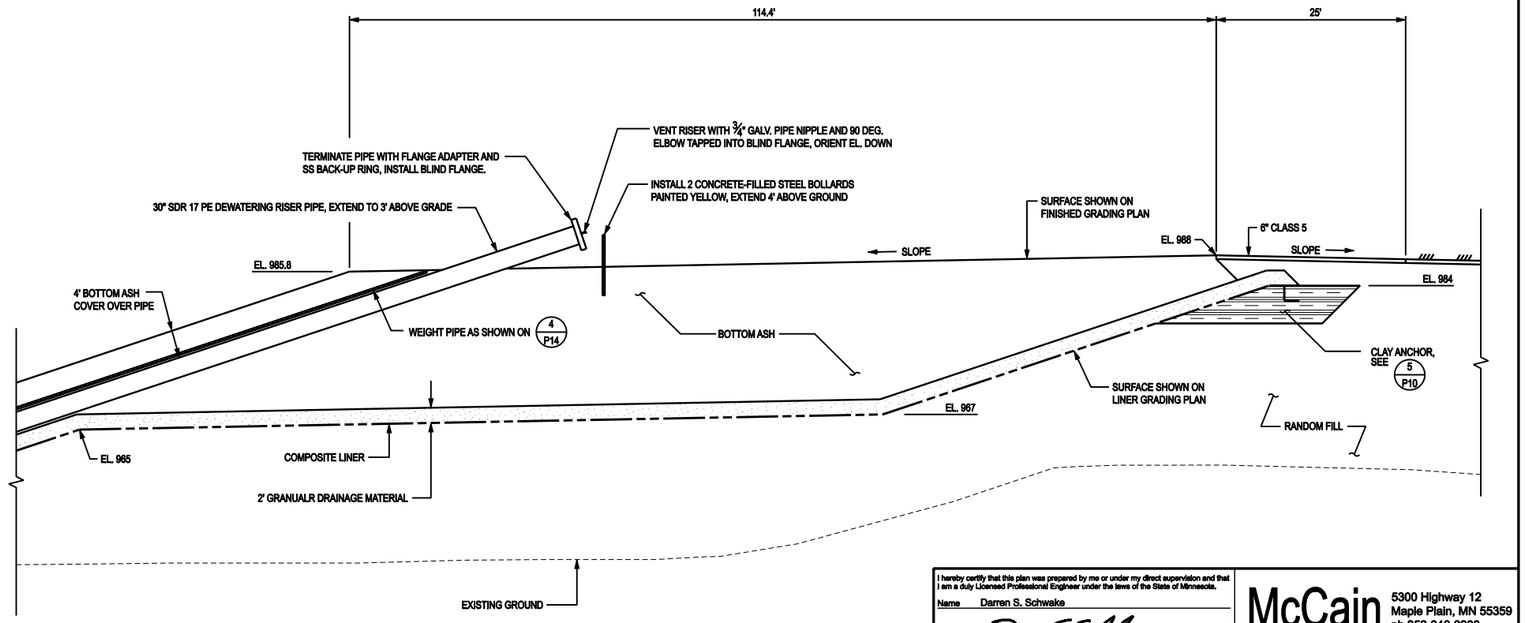
SECTION: WEST EMBANKMENT DEWATERING RISER 3/P4

0 10 20
SCALE IN FEET



SECTION: EAST EMBANKMENT CLEANOUT (5 TOTAL) 2/P4

0 10 20
SCALE IN FEET



SECTION: EAST EMBANKMENT DEWATERING RISER 4/P4

0 10 20
SCALE IN FEET

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Name Darren S. Schwake
Signature
Date 01-06-2011 Reg. No. 24730

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5300 Highway 12
Maple Plain, MN 55359
ph 952-346-3900
fx 952-346-3901

DWN DJR DATE 01/06/11
DGNR DJR CHK'D DSS
APP'D & CERT.
FILMED

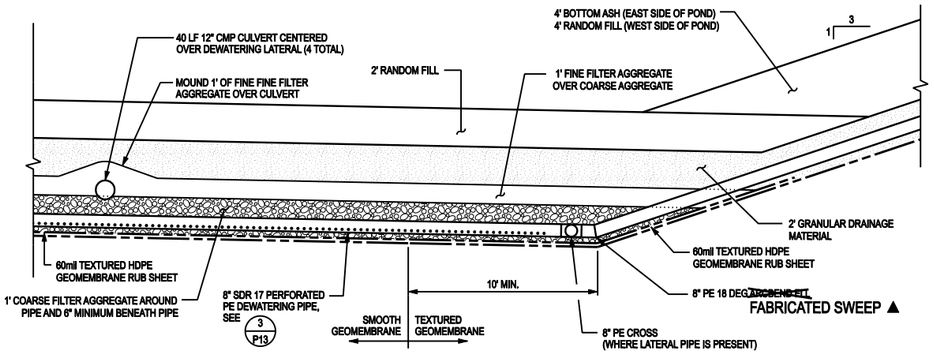
FACILITY: SHERBURNE COUNTY GENERATING PLANT
TITLE: 2010 POND 3 SOUTH CONSTRUCTION
DEWATERING CLEANOUT AND RISER SECTIONS

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

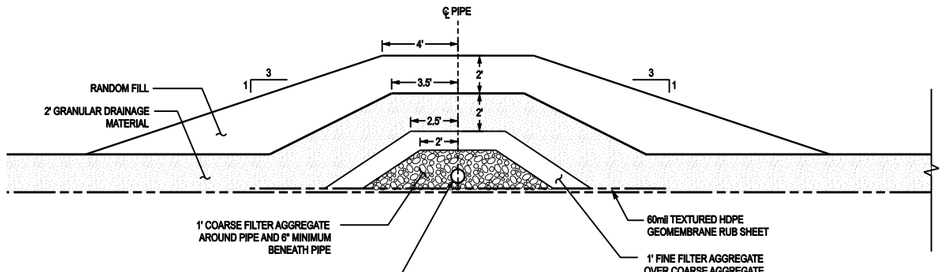
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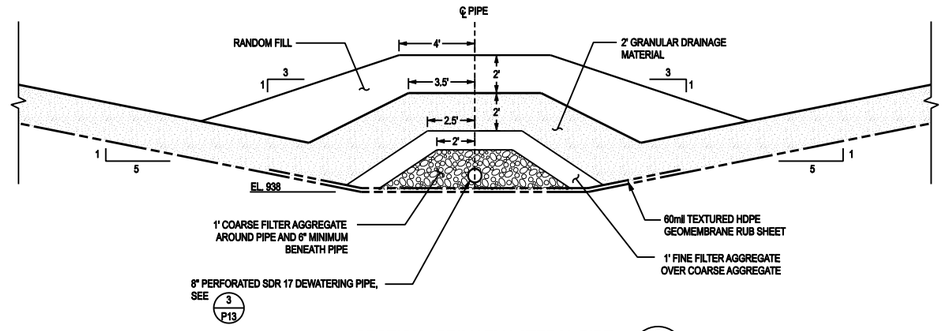
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A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR



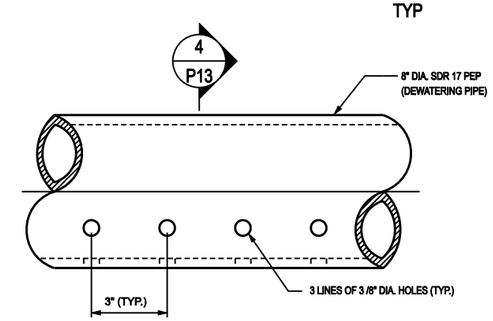
SECTION: DEWATERING LATERAL TO HEADER CONNECTION 1 P4
TYP



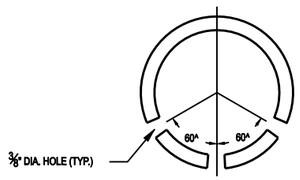
SECTION: LATERAL PIPE 2 P4
TYP



SECTION: PRIMARY LATERAL PIPE 6 P4,P14
TYP

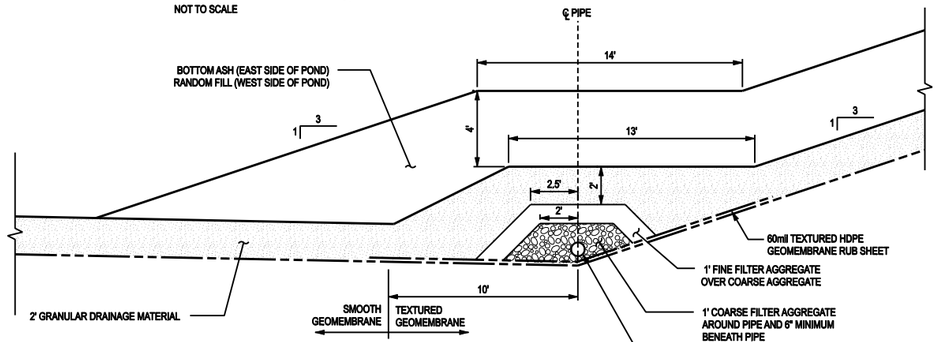


DETAIL: PIPE PERFORATIONS 3 P13,P14
TYP
NOT TO SCALE

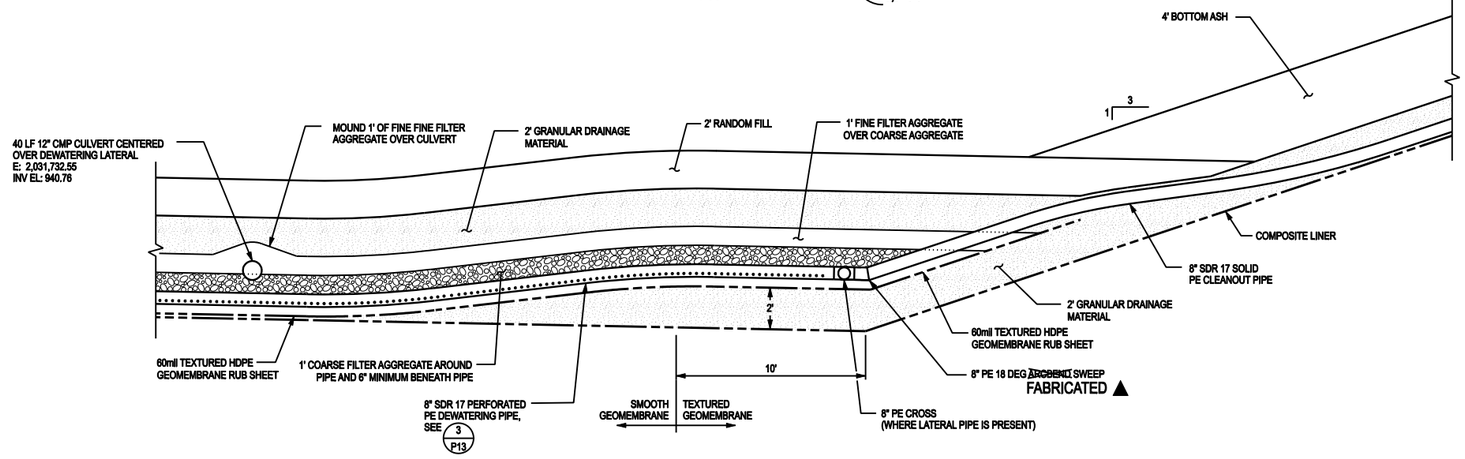


NOTE:
DO NOT PERFORATE PIPE WITHIN 1' OF THE ENDS OF THE PIPE.
ALL HOLES SHALL BE FACTORY DRILLED AND DEBURRED.

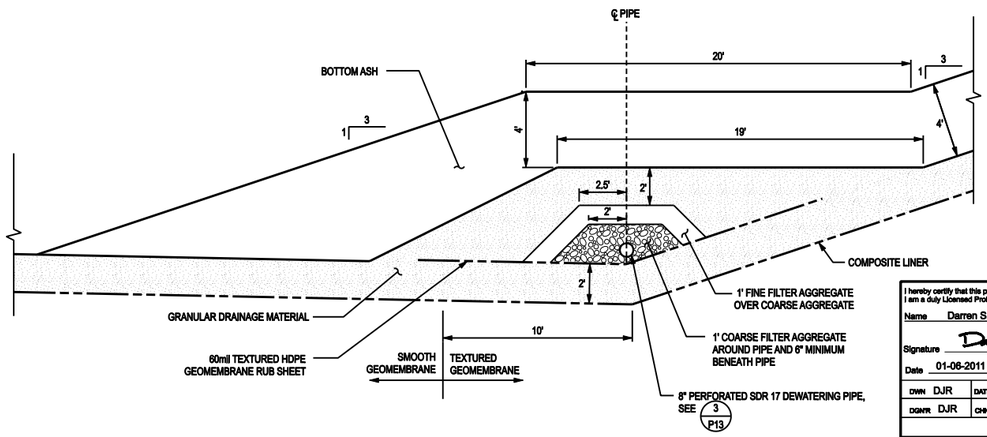
SECTION: PIPE PERFORATIONS 4 P13
TYP
NOT TO SCALE



SECTION: DEWATERING HEADER PIPE 5 P4,P7,P9,P14
TYP



▲ SECTION: DEWATERING LATERAL TO HEADER CONNECTION 7 P4, P4A
SOUTH LATERAL, EAST END CONNECTION



▲ SECTION: DEWATERING HEADER PIPE 8 P4,P4A,P7
EAST HEADER; N: 862,690 to N: 863,030

0 4 8
SCALE IN FEET

SCALE UNLESS OTHERWISE NOTED

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Name Darren S. Schwake
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Date 01-06-2011 Reg. No. 24730

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5300 Highway 12
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fx 952-346-3901

DWN DJR DATE 01/06/11
DGN'R DJR CHK'D DSS
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FILMED

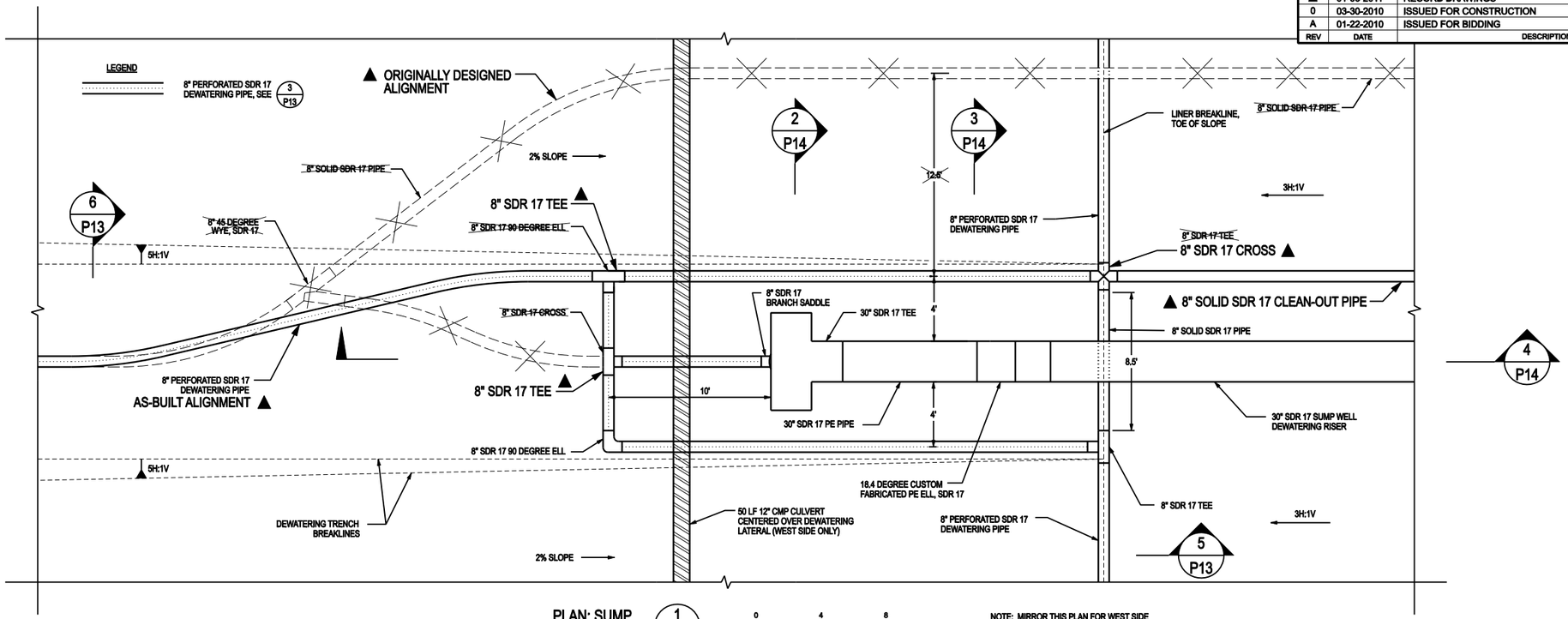
FACILITY: SHERBURNE COUNTY GENERATING PLANT
TITLE: 2010 POND 3 SOUTH CONSTRUCTION
DEWATERING PIPE SECTIONS AND DETAILS

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO. NH-194808-213
Sheet No. P13
REV ▲

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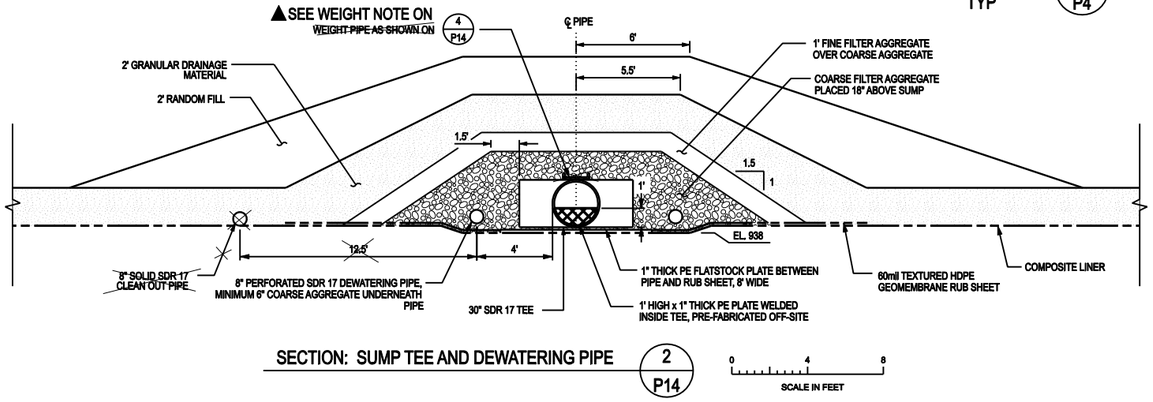
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0	03-30-2010	ISSUED FOR CONSTRUCTION	DSS	DJR	DSS
A	01-22-2010	ISSUED FOR BIDDING	DSS	DSS	DJR



PLAN: SUMP TYP — 1 P4

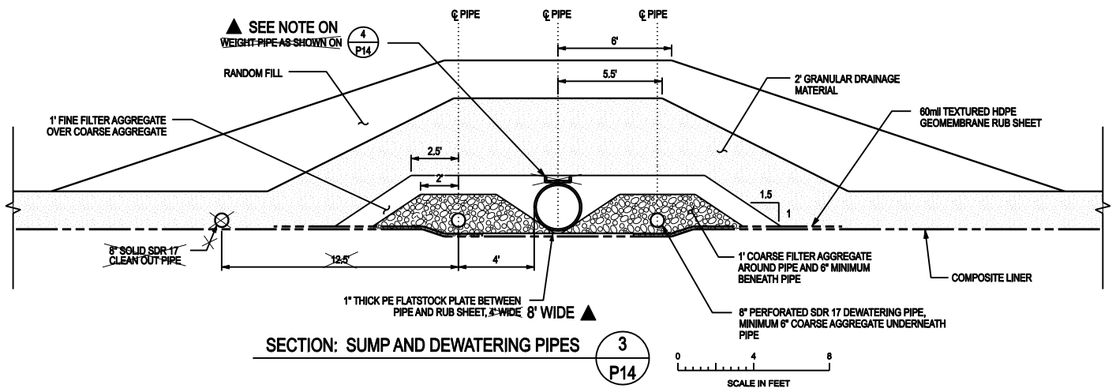
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NOTE: MIRROR THIS PLAN FOR WEST SIDE



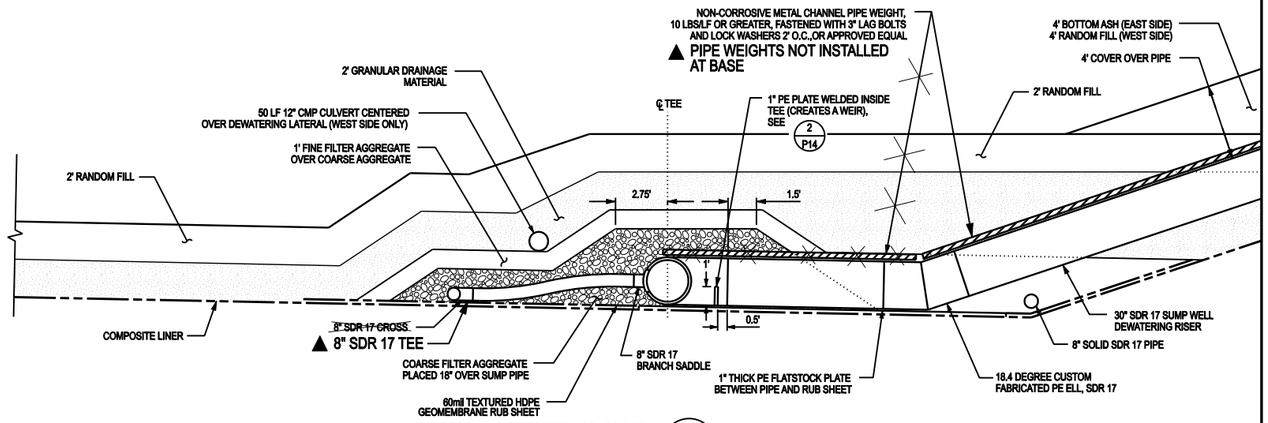
SECTION: SUMP TEE AND DEWATERING PIPE — 2 P14

SCALE IN FEET: 0 4 8



SECTION: SUMP AND DEWATERING PIPES — 3 P14

SCALE IN FEET: 0 4 8



SECTION: DEWATERING SUMP — 4 P12,P14

SCALE IN FEET: 0 4 8

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Name: Darren S. Schwake

Signature:

Date: 01-06-2011 Reg. No. 24730

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fx 952-346-3901

DWN	DJR	DATE	01/06/11
DGNR	DJR	CHK'D	DSS

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: 2010 POND 3 SOUTH CONSTRUCTION

APP'D & CERT.

FILMED

DEWATERING SUMP PLAN AND SECTIONS

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO. NH-194808-214

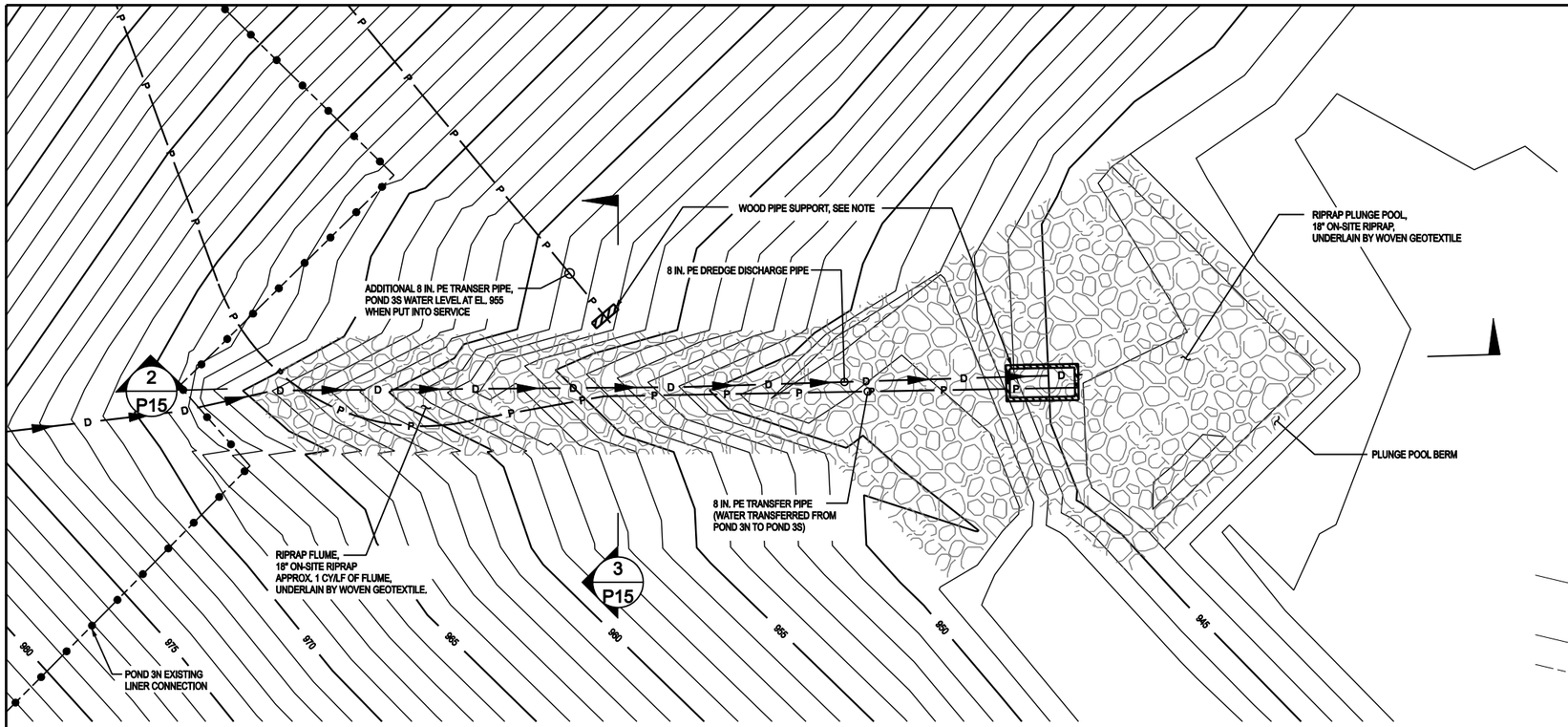
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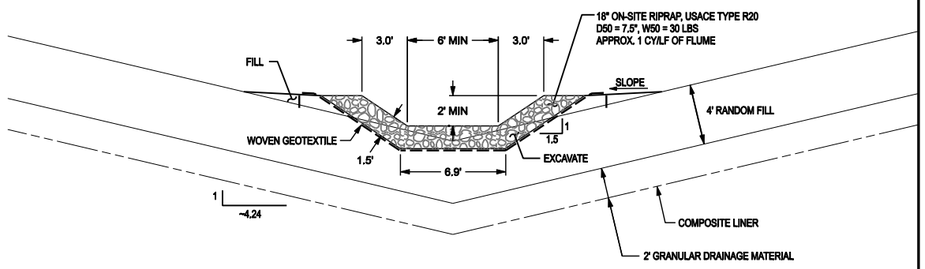
REV	DATE	DESCRIPTION	BY	DWN	CHK'D
▲	01-06-2011	RECORD DRAWINGS	DJR	DJR	DSS



PLAN: RIPRAP FLUME AND PLUNGE POOL (1 / P4A)

0 10 20
SCALE IN FEET

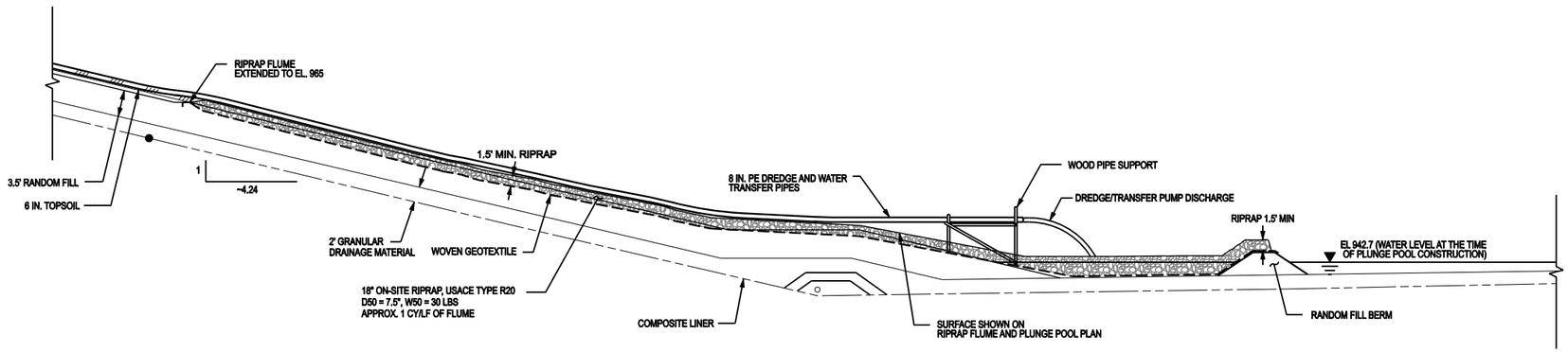
NOTE: THE PIPE SUPPORT WAS ABANDONED AND NEW SUPPORTS WERE CONSTRUCTED UP THE FLUME AS THE POND 3S WATER LEVEL/DREDGE DISCHARGE DELTA ROSE.



FLUME WIDTH AND SIDESLOPES CAN BE ADJUSTED TO BALANCE SOIL, MAINTAIN 6' MIN. FLAT BOTTOM WIDTH AND 2' MIN. DEPTH

SECTION: RIPRAP FLUME (3 / P15)

0 5 10
SCALE IN FEET



SECTION: RIPRAP FLUME AND PLUNGE POOL (2 / P15)

0 10 20
SCALE IN FEET

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Name Darren S. Schwake
Signature
Date 01-06-2011 Reg. No. 24730

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Maple Plain, MN 55359
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DWN DJR	DATE 01/06/11	FACILITY: SHERBURNE COUNTY GENERATING PLANT	
DGN'R DJR	CHK'D DSS		
		TITLE: 2010 POND 3 SOUTH CONSTRUCTION	
APP'D & CERT.		RIPRAP FLUME AND PLUNGE POOL PLAN AND SECTIONS	
FILMED			

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota

XCEL DRAWING NO. NH-194808-215
Sheet No. P15
REV ▲

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