Northern Border's Compressor Station near Ipswich, South Dakota, the starting point for the 178 mile South Dakota Instrastate Pipeline.

Dismantling, Decommissioning and Deconstruction Report for the South Dakota Instrastate Pipeline

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David Howell, Pipeline Equities

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I Introduction

The author David Howell was first introduced to this project in the summer of 2017 with an initial call from Gordon Woods, Vice President and Chief Operation Officer for South Dakota Intrastate Pipeline Company in Pierre, South Dakota. After an introductory telephone conversation, we continued corresponding by email regarding the description and scope of the job.

By the middle of October 2017, Pipeline Equities and South Dakota Intrastate Pipeline had come to an agreement for Pipeline Equities to provide a binding estimate for the decommissioning and dismantling of the system that bears the company name.

It is ascertained that this pipeline or any pipeline has a certain lifespan whereas its maximum safety and use is defined. At that point when the pipeline described in this report is no longer viable as a pipeline or circumstances have caused it to be uneconomical to operate or maintain then dismantling and decommissioning are in order.

Pipeline Equities has participated in the dismantling, decommissioning, and salvage of more than twenty-five million feet of pipe or pipeline over the past thirty years. We have advised, consulted and represented over two hundred pipeline companies in valuation of pipelines, valuation of easements and rights of way, pipeline decommissioning and dismantling, and been a witness in litigation. We have trained and experienced right of way agents, environmentalists, safety consultants, and pipeline construction engineers and estimators in house to provide these service to the pipeline industry anywhere.

The Art of Pipeline Recovery

Handling environmental issues when asbestos is uncovered

The excavation begins.


Half-moon spoon used to evacuate and conform 16" pipe.


Caution fence at road crossing.

BY DAVID HOWELL, SR/WA

In this era of high commodity prices, I believe that more pipelines should be recycled, rehabilitated and reused. A new 16" pipe purchased today would cost upwards of $45 to $50 per foot – not including the cost for coating and transportation. There are so many practical uses for recycled tubes. The pipe can be relaid as pipeline, installed as road boring or road casing, pile driven in many piling applications, used down hole for rat hole or mouse hole connection pipe in drilling operations, as well as many other structural applications.

I have taken up literally hundreds of thousands of feet of pipe on their third recycling leg, including pipe that was laid in Oklahoma in the boom of the 1920s and excavated and relaid in West Texas in the 1930s. At this writing, we are removing this same pipe 60 years later to be used as slurry line in a copper mine in Mexico, water line in Viet Nam, and structural piling in New England.

A Case Study

In the fall of 2007, our Houston pipeline recovery firm contracted to purchase a seven-mile plus segment of sixteen-inch diameter pipeline in West Texas from a large interstate pipeline company. The pipeline company had purchased this line with the knowledge that it had a questionable maintenance history. As a result, they decided to replace the sixteen-inch diameter line with a new eight-inch diameter segment. We were originally approached regarding the purchase of this old line with the provision that the line be removed according to the pipeline company's specifications and on their timetable to coincide with laying the new line.

The pipeline company decided to lay the new line in the same ditch as the old line we were removing. Prior to signing off on the purchase, we surveyed the old sixteen-inch, seven-mile segment

to determine whether the pipe was suitable for recovery and reuse for structural or other applications. A positive assessment was made, and we made provisions to obtain ownership of the line. In this case, our company already owned the pipeline, and the pipeline company maintained ownership of the right of way as they were to replace the old line with a new one. They decided to retain a right of way service company to deal with landowner relations before and during the excavation process.

Preparing for the Excavation

A land surveying company was asked to resurvey the pipeline, as it had not been mapped in many years, and all parties wanted to determine what other circumstances might have altered the existing right of way over the past 20 years. Realizing that no system is perfect, it was no surprise when we discovered that some lines were missed in the survey. In addition, the flow lines that crossed the pipeline were made of fiberglass and could not be determined or found with any conventional survey tools.

Flow lines are not usually mapped, and in this case, they were active and gathered crude oil from the many wells in the area and transported it to central storage tanks. Since these lines take crude oil from a well to a gathering spot, such as another pipeline for gathering or a field tank storage system, there were ample opportunities for the release of product. As a result, great care and caution was essential.

In another part of the survey, we removed a sample of the pipeline coating and sent it to be tested for asbestos. Guidelines and regulations require staged or random samples along the pipeline as procedures and materials might have changed during the lay or maintenance process. Two samples were taken at different parts of the pipeline approximately three miles apart. The lab report in both cases affirmed a 25% asbestos content in the coating, which was embedded in a felt and tar (or coal tar type) material. The coating was not considered "friable" or free floating while embedded in the tar and felt material. Federal guidelines are interpreted differently in various locales. For example, in California the coating on a joint of pipe loaded on a truck with asbestos-containing materials is considered a product. If it is removed by a mechanical means, then it becomes an independent material and a candidate for being friable.

We retain a full-time Texas-certified consultant to oversee the operation in order to comply with state and federal guidelines regarding proper disposal of asbestos in the coating material as well as to ensure the safety of the personnel employed on the project. Their job is to determine when, and if, the asbestos-containing material on the pipelines or coating is potentially friable and, if so, to determine which procedure is necessary to contain it and prevent any problems from happening. In the case of this particular recovery, Joe Prevost was in charge of environmental oversight. As a certified contract supervisor in the state of Texas and a graduate of NATEC of Texas, Inc.

Track hoe lifts pipe to be saw cut. Saws are used instead of torches due to dry grasses in area (fire hazard).


Specialty truck unloads at staging area.


Coated pipe prior to cleaning.


Pipe is cleaned, racked and ready to load.

Slice cleaning process.


Coating and dirt loaded in lined container for landfill.


Gathering surface soil.


Surface soil from right of way disposed of at landfill.

training school for asbestos abatement, he is considered an expert in the area of pipeline asbestos coating abatement.

The Removal Process

A construction company was retained to provide roll-off or portable container units to help contain any coating material that might fall off during the removal process. Since the material does not bond well with the pipe, it is normal to expect a certain amount to fall during the process. In addition, the company provided other transportation units to haul the pipe from the excavation site on the right of way to the staging area nearby. The transportation vehicles and trailers used were designed specifically to minimize the distribution of waste material along the right of way and to minimize clean up procedures by hand. We determined that this was the most efficient method for controlling and containing the material.

It was determined that pipe with asbestos-containing material on the coating should remain on the right of way in order to maintain better control of falling material. As a result, we took precautionary methods and removed the coating before the pipe was transported on public highways. Recognizing that we needed to remove all this material before it could be moved to another location, arrangements were made to dispose of the coating material in a local landfill which agreed to take the material with proper documentation.

The process of rehabilitating this pipe began when the pipe was excavated and loaded on a special trailer and transported down the right of way to the staging (cleaning) area. Each day, the coating was removed from the right of way areas where it had fallen off during transportation and throughout the staging process. At the staging area, the pipe was slice cleaned by removing the coating material with a special tool attached to the excavation equipment. Then the asbestos-containing material was loaded into a lined roll-off container, dampened to keep it from becoming friable, and placed under a tarp to contain the material as it was removed. As an added safety precaution, personnel used respiratory masks at all times. When the roll-off container was filled, a special truck transported the material to the landfill.

The construction company has provided special equipment and personnel specifically for the clean-up and transportation of material to the landfill during the course of the project. One of our supervisors accompanied each load of waste material to the landfill and observed disposition of each load before signing off on the appropriate paperwork. Our certified asbestos abatement supervisor followed the truck transporting the material to the landfill and observed the roll-off being weighed, unloaded, and prepped for burial in the landfill. The truck and empty container were then weighed again and documents completed so that a history and paper trail existed on the manifest signed by the landfill authority, the asbestos supervisor/inspector, and the driver of the truck who

was employed by a local construction company familiar with our abatement procedures.

After the excavation crews finished their work, it was important to take care of the staging area where the pipe had been sorted, cleaned, and loaded prior to shipping to market. While the crews cleaned the residue from the coating on a daily basis, there was additional work to remove any soil surface area that might contain any residue or coating. A minimum of two inches of surface topsoil was accumulated throughout the cleaning area and removed to the landfill.

Project Summary

This project took about 45 days to complete due to the congestion of multiple flow lines and the delays caused by other pipelines transporting substances across the right of way route. There were a large number of these lines crossing our right of way. Those pipelines belonged to other pipeline and production companies who demonstrated extreme caution during the transportation process. This is often the case, as companies involved with moving pipelines want to ensure their line is not cut during the process, as this could easily cause a spill or release.

In addition, many of the lines were not marked in any way and extensive use of line finders and surveys were employed to map the pipeline so as to prevent any mishaps or damaged pipelines whether active or abandoned.

The overall cost of the project including excavation, cutting of the pipe, removing it from the ditch, hauling it to the staging area, removing the coating, hauling the residue to the approved landfill, paying landfill fees, and then loading pipe on trucks for market and final clean up of the staging site and right of way cost about $10 to $12 per foot for work on the job portion only. This was only a seven-mile pipeline, and I know that longer lines would be more economical. A 40 or 50 mile or longer line would be much more economical on a per foot basis due to mobilization costs and economies of scale.

Recycling

It should be noted that the real issue lies in the recycling of out-of-use pipelines. When it comes down to things, we are talking about steel in a tubular form. In this case, the pipe that had been servicing crude oil for the past 50 years was in excellent condition!

Low Priority

The bottom line is that most companies do not want to bother with out of use, idled or abandoned pipelines. They are considered potential environmental problems with unknown or imagined consequences for anyone tampering with them. Most business development managers have higher yielding priorities than disposing of out-of-use pipelines, so from a financial standpoint, it's no wonder that the disposal task gets bumped. Still, other companies feel they are warehousing right of way easements if they leave a pipeline idled, but on an abandoned status as far as regulatory or taxing authorities are concerned. As regulatory agencies continue their discussions on disallowing "in place" abandonment of pipelines without individual landowner permission, we can expect to see some important changes in the very near term. ✪

Grading location during final clearing.

Running Head: History of steel pipes

A Brief history of steel pipe

David Howell / Pipeline Equities

Steel pipes are long, hollow tubes that are used for a variety of purposes. They are produced by two distinct methods

which result in either a welded or seamless pipe. In both methods, raw steel is first cast into a more workable starting form. It is then made into a pipe by stretching the steel out into a seamless tube or forcing the edges together and sealing them with a weld. The first methods for producing steel pipe were introduced in the early 1800s, and they have steadily evolved into the modern processes we use today. Each year, millions of tons of steel pipe are produced. Its versatility makes it the most often used product produced by the steel industry. Steel pipes are found in a variety of places. Since they are strong, they are used underground for transporting water and gas throughout cities and towns. They are also employed in construction to protect electrical wires. While steel pipes are strong, they can also be lightweight. This makes them perfect for use in bicycle frame manufacture. Other places they find utility is in automobiles, refrigeration units, heating and plumbing systems, flagpoles, street lamps, and medicine to name a few. People have used pipes for thousands of years. Perhaps the first use was by ancient agriculturalists that diverted water from streams and rivers into their fields. Archeological evidence suggests that the Chinese used reed pipe for transporting water to desired locations as early as 2000 B.C. (Francis, 2009)

Development of the modern day welded steel pipe can be traced back to the early 1800s. In 1815, William Murdock invented a coal burning lamp system. To fit the entire city of

London with these lights, Murdock joined together the barrels from discarded muskets. He used this continuous pipeline to transport the coal gas. When his lighting system proved successful a greater demand was created for long metal tubes. To produce enough tubes to meet this demand, a variety of inventors set to work on developing new pipe making processes. An early notable method for producing metal tubes quickly and inexpensively was patented by James Russell in 1824. In his method, tubes were created by joining together opposite edges of a flat iron strip. The metal was first heated until it was malleable. Using a drop hammer, the edges folded together and welded. The pipe was finished by passing it through a groove and rolling mill. Russell's method was not used long because in the next year, Comenius Whitehouse developed a better method for making metal tubes. This process, called the butt-weld process is the basis for our current pipe-making procedures. In his method, thin sheets of iron were heated and drawn through a cone-shaped opening. As the metal went through the opening, its edges curled up and created a pipe shape. The two ends were welded together to finish the pipe.

Welded pipe is formed by rolling steel strips through a series of grooved rollers that mold the material into a circular shape. Next, the unwedded pipe passes by welding electrodes. These devices seal the two ends of the pipe together. This process in the United States was opened in 1832 in Philadelphia. Gradually, improvements were made in the

Whitehouse method. (Ellyn, 2009) One of the most important innovations was introduced by John Moon in 1911. He suggested the continuous process method in which a manufacturing plant could produce pipe in an unending stream. He built machinery for this specific purpose and many pipe manufacturing facilities adopted it. While the welded tube processes were being developed, a need for seamless metal pipes arouses. Seamless pipes are those which do not have a welded seam. They were first made by drilling a hole through the center of a solid cylinder. This method was developed during the late 1800s. These types of pipes were perfect for bicycle frames because they have thin walls, are lightweight but are strong. In 1895, the first plant to produce seamless tubes was built. As bicycle manufacturing gave way to auto manufacturing, seamless tubes were still needed for gasoline and oil lines. This demand was made even greater as larger oil deposits were found.

As early as 1840, ironworkers could already produce seamless tubes. In one method, a hole was drilled through a solid metal, round billet. The billet was then heated and drawn through a series of dies which elongated it to form a pipe. This method was inefficient because it was difficult to drill the hole in the center. This resulted in an uneven pipe with one side being thicker than the other. In 1888, an improved method was awarded a patent. In this process the solid billed was cast around a fireproof brick core. When it

was cooled, the brick was removed leaving a hole in the middle. Since then new roller techniques have replaced these methods.

Pipe bending is a crucial component in the formation of many different types of pipelines, like the ones that are used to transport such products as oil, natural gas, water and even sewage. The most valuable of all these products is of course oil. Before the invention of pipe bending for oil pipelines, oil was transported from oil wells to railway stations by horse in converted wooden whiskey barrels. It is because of these wooden whiskey barrels that we still measure oil by the barrel today. Oil pipelines were first used in Pennsylvania to connect an oil field to a railway station. This first pipeline spanned 6 miles and was made entirely out of wrought iron. Eventually the idea caught on and improvements where made leading up to our modern pipelines which are now made out of metal. Although when one thinks of pipelines they may immediately jump to those that are used for oil, there are many other types of pipelines that are used for different reasons. Pipelines - are the ones that probably first come to mind when you think or an oil pipeline. These pipelines consist of very long pipes with large diameters and are used to transport products such as crude or refined oil and natural gas long distances. Transportation pipelines can stretch between cities, countries and even continents. (Helber, 2009)

Without pipelines our civilization would come to a screeching halt. There are two types of steel pipe, one is seamless and another has a single welded seam along its length. Both have different uses. Seamless tubes are typically more light weight, and have thinner walls. They are used for bicycles and transporting liquids. Seamed tubes are heavier and more rigid. The have a better consistency and are typically straighter. They are used for things such as gas transportation, electrical conduit and plumbing. Typically, they are used in instances when the pipe is not put under a high degree of stress. Certain pipe characteristics can be controlled during production. For example, the diameter of the pipe is often modified depending how it will be used. The diameter can range from tiny pipes used to make hypodermic needles, to large pipes used to transport gas throughout a city. The wall thickness of the pipe can also be controlled. Often the type of steel will also have an impact on pipe's the strength and flexibility. Other controllable characteristics include length, coating material, and end finish.

Seamless pipe is manufactured using a process that heats and molds a solid billet into a cylindrical shape and then rolls it until it is stretched and hollowed. Since the hollowed center is irregularly shaped, a bullet-shaped piercer point is pushed through the middle of the billet as it is being rolled. Typically, a light amount of oil is applied to steel pipes at the end of the production line. This helps

protect the pipe. While it is not actually a part of the finished product, sulfuric acid is used in one manufacturing step to clean the pipe. Steel pipes are made by two different processes. The overall production method for both processes involves three steps. First, raw steel is converted into a more workable form. Next, the pipe is formed on a continuous or semi continuous production line. Finally, the pipe is cut and modified to meet the customer's needs.

Blooms are typically processed further before they are made into pipes. Blooms are converted into billets by putting them through more rolling devices which make them longer and narrower. The billets are cut by devices known as flying shears. These are a pair of synchronized shears that race along with the moving billet and cut it. This allows efficient cuts without stopping the manufacturing process. These billets are stacked and will eventually become seamless pipe. Slabs are also reworked. To make them malleable, they are first heated to 2,200° F (1,204° C). This causes an oxide coating to form on the surface of the slab. (Boycott, 2010)

This coating is broken off with a scale breaker and high pressure water spray. The slabs are then sent through a series of rollers on a hot mill and made into thin narrow strips of steel called scalp. This mill can be as long as a half mile. As the slabs pass through the rollers, they become thinner and longer. In the course of about three minutes a single slab can be converted from a 6 in (15.2 cm) thick piece of steel to a

thin steel ribbon that can be a quarter mile long. After stretching, the steel is pickled. This process involves running it through a series of tanks that contain sulfuric acid to clean the metal. To finish, it is rinsed with cold and hot water, dried and then rolled up on large spools and packaged for transport to a pipe making facility. After either type of pipe is made, they may be put through a straightening machine. They may also be fitted with joints so two or more pieces of pipe can be connected. The most common type of joint for pipes with smaller diameters is threading—tight grooves that are cut into the end of the pipe. The pipes are also sent through a measuring machine. This information along with other quality control data is automatically stenciled on the pipe. The pipe is then sprayed with a light coating of protective oil. Most pipes are typically treated to prevent it from rusting. This is done by galvanizing it or giving it a coating of zinc.

Depending on the use of the pipe, other paints or coatings may be used. A variety of measures are taken to ensure that the finished steel pipe meets specifications. For example, x-ray gauges are used to regulate the thickness of the steel. The gauges work by utilizing two x rays. One ray is directed at a steel of known thickness. The other is directed at the passing steel on the production line. If there is any variance between the two rays, the gauge will automatically trigger a resizing of the rollers to compensate. Pipes are

also inspected for defects at the end of the process. One method of testing a pipe is by using a special machine. This machine fills the pipe with water and then increases the pressure to see if it holds.

Defective pipes are returned for scrap. Without the advancement of metal fabrication many things we take for granted could not be made today. One of the most useful forms is the one used to bend pipes to create such things as water lines, natural gas pipes and oil pipelines. The first pipeline was made out of wrought iron and it spanned over 6 miles from an oil field in Titusville Pennsylvania to a railway station in Oil Creek. Colonel Edwin Drake is credited with drilling the first commercial oil well in 1859 that used this revolutionary pipeline. Soon after the pipeline business grew and the type of metal used for pipes improved from wrought iron to steel. Thermally insulated steel pipelines are extremely important for oil and gas industry. (Bao, 2010)

Steel pipelines, which lie buried for hundreds of years, has extraordinary properties including excellent stress crack resistance to natural gas and its contaminants, low permeation to methane and hydrogen, high HDB rating at 20°C, 60°C and 80°C, superior impact resistance, squeeze off, and dependable UV performance for outside storage. The insulation material is usually polyurethane foam (PU), which has high thermal efficiency and is mechanically strong. Small, medium and large diameter pipes are available and the high strength of steel

also makes bending and forming more difficult. Generally, Electric Resistance Welded (E.R.W.) steel Pipe are used for oil and gas processing and transmission lines registered and assures consistent quality in its application. These oil and gas pipes are equally good in hot or wet applications such as river crossings and rough terrain. The use of steel provides standard for pipe suitable for use in conveying gas, water and oil in both the oil and natural gas industries. Small, medium and large diameter steel pipes are available however, the high strength of steel makes bending and forming more difficult. Generally, Electric Resistance Welded (E.R.W.) steel pipe are used for oil and gas processing and transmission lines registered which assures consistent quality in its application.

ERW pipes are equally good in hot or wet applications like river crossing and rough terrains. Perhaps the greatest challenge which faces any industry is the self-challenge emanating from the inside of such an industry, which makes it imperative to develop the technology of this industry. There is also another challenge which is not less important. It is the availability of new alternatives of a competition nature. The self-challenge and availability of alternatives are two questions which clearly came to light in the First Arab Conference on Tubes industry organized by the Arab Iron and Steel Union in the period 6 – 8 June 2005. Within the context of the self-challenge, usually imposed by the technological

development which makes it inevitable to be responsive to the needs of the pipes consumers either in terms of improving the quality, reducing the costs or diversifying the areas of application, the world pipes manufacturing companies could prove their capability to find new creative designs meeting the requirements of using the tubular goods, either they are welded or unwedded pipes. The necessity to introduce new developments into the tubular goods has arisen with the increasing demand for using such pipes in the transcontinental operations of transporting oil and gas to remote places, because the steel pipes are considered the best means for the gas transportation.

This has strengthened the development of the pipes industry at the world level and increased their production with the increasing demand for them. The total world production of pipes in 2004 amounted to 78.45 million tons, i.e., up by 15 million tons over the production level of 2002 which amounted to 63.38 million tons, that is, by an annual growing rate of 8%, which exceeded the rates achieved in the parent steel industry despite what it has achieved of production increase as its production in 2004 had exceeded one billion tons of crude steel. However, the growth rate of this industry did not exceed 4% during the first years of this decade. (Earnpiel, 2010)

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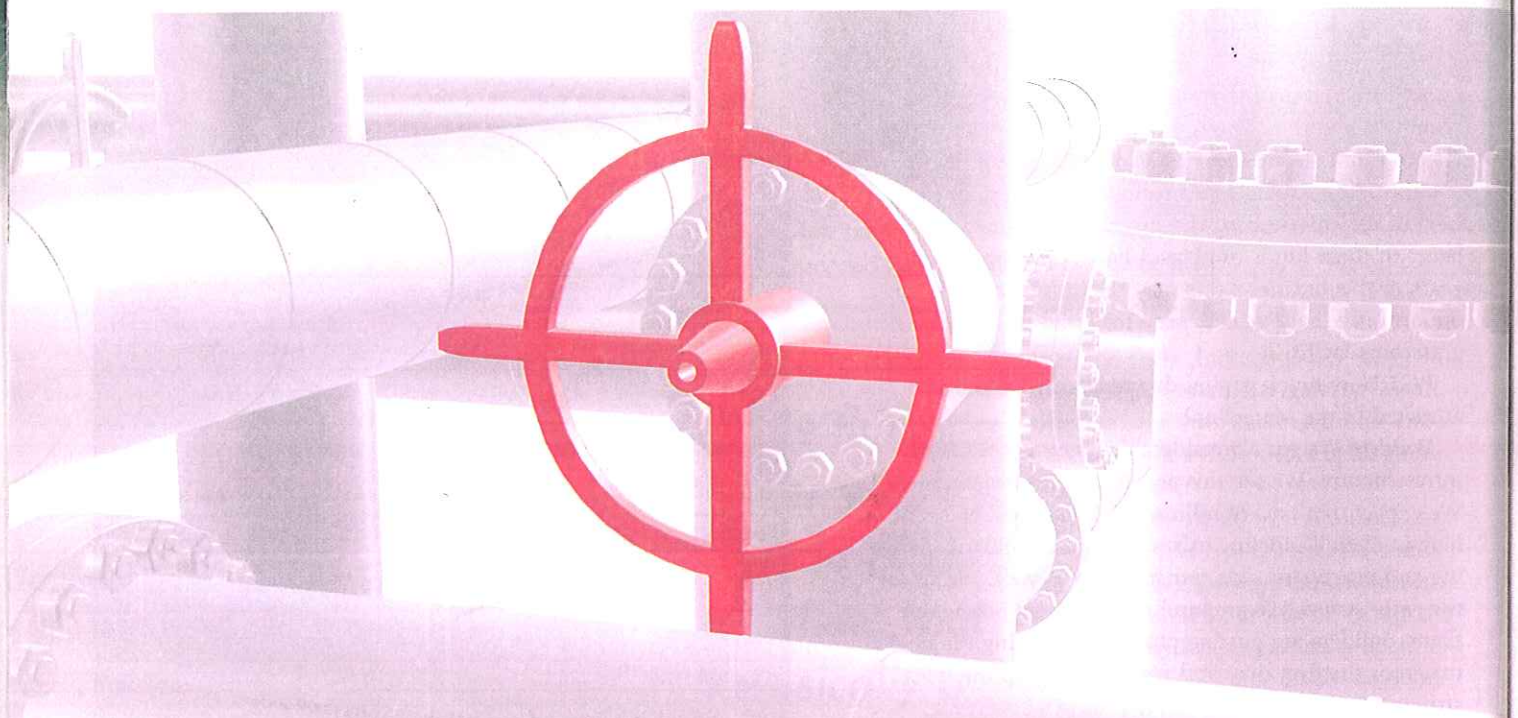
Methods for determining the value of pipelines, Part 1

With the advent of new pipeline construction and the transfer of pipeline assets via mergers, divestitures and investment exits, pipeline appraisals are playing an increasingly important role for upstream and midstream companies alike.



David Howell, *Pipeline Equities*

With the advent of shale-gas plays, several joint ventures have been formed between oil and gas producers and private-equity providers to launch new midstream companies. As the new entities gather and transport gas to market, the field matures, and the producers look to monetize the midstream assets through a sale, seeking the higher returns of drilling and production activities.

Before the sale, an appraisal is needed to evaluate the midstream assets. That's where pipeline appraisal efforts come into play. As with most activities, there are several methods of appraisal.

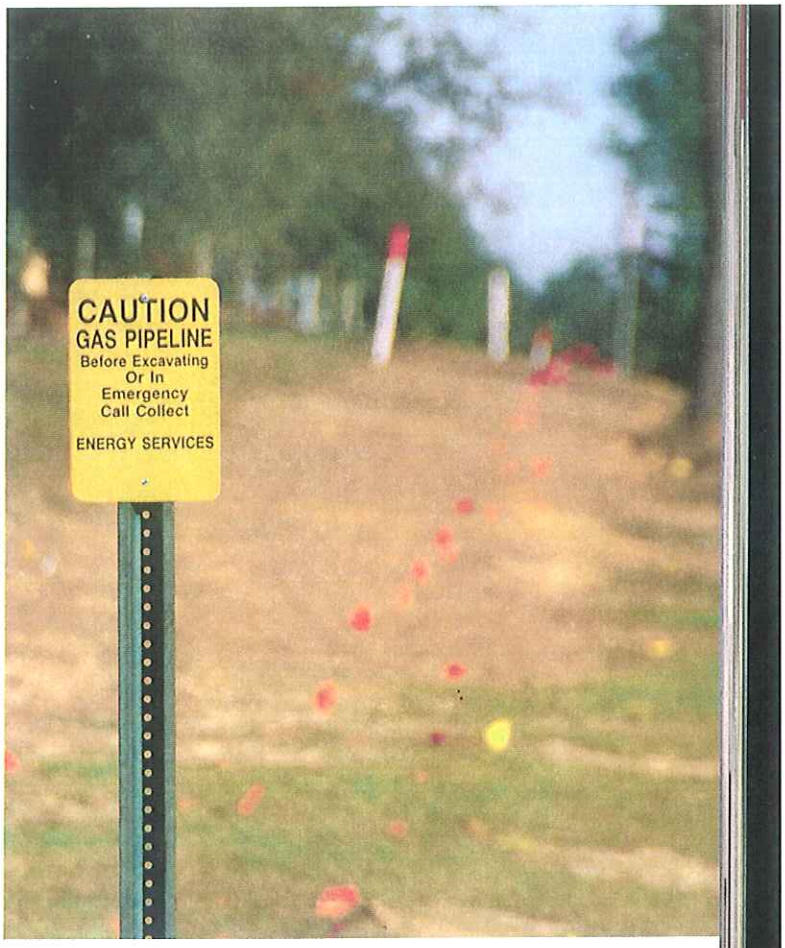
Many right-of-way appraisers rely on the "across-the-fence" (ATF) method to assign value to a particular right-of-way. The ATF method suggests that the right-of-way is worth whatever the surrounding land is worth. This method is popular, but only accounts for the value of the land itself. It does not take into account the value of the entity that uses the right-of-way, especially when it comes to right-of-way segments that contain pipelines. Typically, an easement or right-of-way contributes 5% to 7% of the cost of building a pipeline and is not a large factor in the value.

Pipeline Equities saw the need to find methods of appraisal suited specifically to the pipeline industry. The need for pipeline appraisals came about initially when a discovery was made of the overvaluation of pipelines by local taxing authorities as well as overvaluation (and undervaluation) of pipelines involved in mergers, acquisitions, or estate settlements.

A valuation report concerning active or inactive oil, gas or product pipelines may be required for the following reasons: preparing for a sale or divestiture; readjusting state, local, ad-valorem taxes/tax assessments; estate settlement; partnership termination; preparing for a purchase or acquisition; determining salvage value; preparing for pipeline use conversion; and establishing value for accurate accounting.

Appraisal methods

Beyond the ATF method, Pipeline Equities uses a combination of methods



The across-the-fence method of right-of-way appraisal takes into account the value of surrounding land, but does not include the value of the entity that uses it.

to determine the value of a pipeline. The first, a market analysis, uses comparable sales histories. This works well for valuing land and housing, but each pipeline is so different that a method of comparable sales is not very useful. Because land and houses are plentiful, making commodities of land or houses is much easier than making commodities of pipelines.

However, this method is still useful to get an overview by looking at sales histories of comparable pipelines in varying circumstances and locales in order to get some ideas in broader areas of comparison such as urban versus rural, California versus Mississippi, gas versus crude and regulated versus non-regulated pipelines. This factor is also called comparable analysis and is the primary tool for determining pipeline right-of-way values as opposed to the ATF method used by real estate appraisers for valuing road and power line easements.

The highest-and-best-use method is not the best method for pipeline evaluation. However, on occasion, when pipelines are being valued for usage change, this method can be useful to establish the value of the existing pipeline and the cost of converting it for another use. Pipelines can be converted from crude-product pipeline to fiber-optic conduits or conduits for electric-power line cables from wind-farm electric-grid centers.

For the most part, pipelines are best used for the intent constructed. In the approach using highest-and-best-use, it is better to combine the valuation with some of 40 factors, such as size of line, geography, terrain or right-of-way values. An example might be that the highest-and-best-use for a six-inch gas line might be to change it out for a 10-inch crude line using the same right-of-way, if the contract permits the replacement.

Another method is seller-determined need. This method is used if the seller wants to record financial gain or loss from a sale-use book value. It is not much use to a purchaser because it has no relevance to current worth. Basically, the book value might be generated by the accounting of the seller or owner of the property, in whatever means the company accounting might use to determine the book value. For example, it might be based on any methods of determining value such as construction cost, new or discounted, but such book-value designation by the seller has no relevance to the value as far as the purchaser is concerned.

The income base or cash-flow method is a popular means of establishing value for pipelines if they are generating or will generate a predicted cash flow. This method takes into account forecasted income based on throughput volumes and rates of the commodity transported. Expenses based on a historical or projected income stream are discounted. A variation of this method uses multiples of current cash flow where the average annual cash flow is multiplied by a factor of five to 12. This can be done on an annual or monthly basis, much like values of oil and gas royalties are determined. Stakeholders like to compare pipeline values to oil and gas mineral interests. Both can have an indefinite life and both can be reborn as new drilling or new discoveries are made in an area. These additional income streams can be discounted to find a present-day value, or net present value when using future multiples or income.

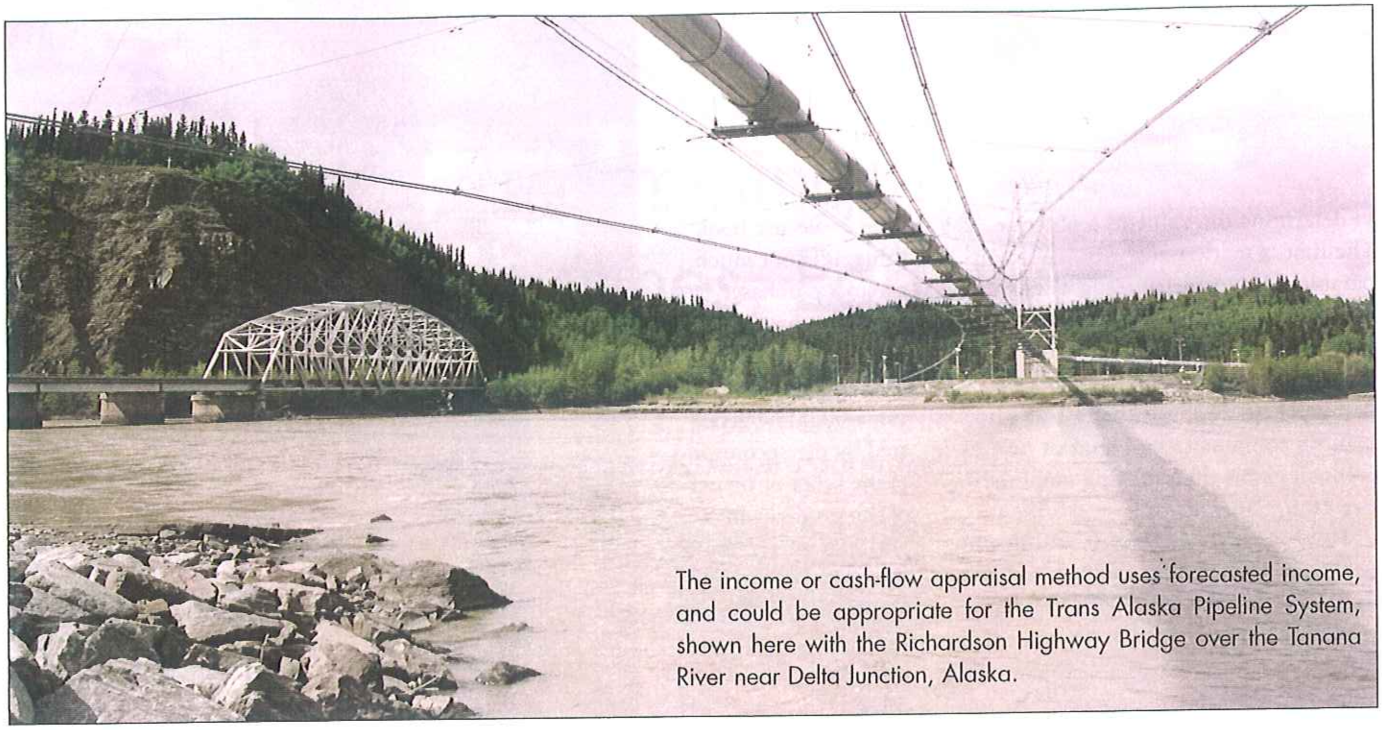
For example, the future income after operating expenses of a gas pipeline might be $200,000 per year. A reasonable value might be five times that amount or $1,000,000. A buyer might determine that the net present value in dollars paid today might be 20% less than the $1,000,000 or $800,000 net present value, in today's dollars.

The new-construction or replacement cost method is the cost of rebuilding the same pipeline with the same size, same manner, and same (or comparable) easement. This is an important factor in placing value on a pipeline to be considered by a purchaser. This approach also can be discounted. For example, when determining the value of a pipeline that has been operating for 10 years after it was initially installed, the line might have an expected life of 40 years. It could be discounted 2.5% per year of life or a total of 25% off the cost of new construction in today's market.

Each of the above methods can be employed to determine value for a property, or a combination of all can be used. Value occurs with the interaction of demand, utility, scarcity or supply of property and ready transferability of ownership rights.

Factors for values

In addition to these methods, other factors must be considered when assigning



The income or cash-flow appraisal method uses forecasted income, and could be appropriate for the Trans Alaska Pipeline System, shown here with the Richardson Highway Bridge over the Tanana River near Delta Junction, Alaska.

value to a pipeline. Pipeline Equities uses as many as 40 different factors to make value determinations. These factors cover the technical aspects of business, physicality, property and commodity value.

Other factors depend on whether product is purchased at the wellhead and resold, whether and to what extent the product is compressed, enhanced, treated, cleaned, or processed and by what procedures.

Pipeline Equities has had several recent opportunities to appraise pipelines for a variety of purposes. Recently, it appraised a vintage crude pipeline in a mature field on the West Coast. The line had been active in the past and later idled. The operator had intentions of rehabilitation and reactivation of the line and needed a fresh appraisal to help determine transport fees or tariffs as a common carrier. It was necessary to estimate the new construction price as well as depreciation and account for rehabilitation costs. Pipeline Equities found the appreciation of the right-of-way costs in the heavily congested area more than made up for any deficiency in depreciated new construction costs.

During another appraisal, a bank contacted the firm to obtain an appraised value for a pipeline to be built that would transport jet fuel to an airport. The bank wanted to know the value of the proposed pipeline before financing the construction cost. In place were a long-term contract, a firm bid for new construction, and competent, experienced management.

Elsewhere, a hedge fund decided to exit investment in a pipeline business and needed an appraisal of hundreds of miles of active and inactive gathering and transmission pipelines. It wanted to determine the value of the pipeline network to divide interests among investors. Pipeline Equities used multiple methods, including salvage, to come to an equitable value to which all

EXHIBIT (GW-SD-1)
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parties agreed. Many of the gathering lines had no discernable easement by which a single right-of-way method like ATF could be used.

The firm has seen many instances where a pipeline or gathering system was originally built for a new field with flush production, but the field was nearing depletion. The operators still must pay regular taxes according to earlier throughput or initial values, which were generally not depreciated. Local and state taxing authorities want up-to-date appraisals before lowering rates. Many local tax appraisers use only new construction cost methods with no regard for throughput, generally via abbreviated Marshal and Swift formulas. Marshall and Swift is a commercial database of information, which is like a supermarket for almost any kind of asset valuation, sold by subscription.

Conclusion

The appraisal of pipelines is a specialized and niche industry. The methods for determining value are different from any other type of appraisal practice due to the uniqueness of the product being appraised. No two pipelines are the same. Methods should be based on the way a pipeline owner looks at a pipeline and the right-of-way in which it rests.

Ultimately, the appraiser can only offer an opinion based on available data and market conditions. When it is all completed, the value is based on what the seller will take and what the buyer will give for a property.

Each of the factors, examples, methods and definitions could be greatly expanded on. For additional information on this subject, visit the author's website at www.pipelineequities.com or email a request for a complimentary copy of the Pipeline Recovery Manual to davidhowell@pipelineequities.com. ■

David Howell has been in the pipeline salvage and recovery business for 26 years. His company, Pipeline Equities (pipelineequities.com), also brokers and appraises pipelines. Howell is a designated senior right-of-way agent through the International Right-of-Way Association with Environmental and Acquisition/Negotiation Certifications and is a graduate of Texas A & M-Kingsville. He is the author of the Pipeline Recovery Manual and Pipeline Appraisal Handbook.

For more information and the summary of 40 methods, see this article online at pipelineandgastechnology.com. Next month, read Methods for determining the value of pipelines, Part 2.

From the publishers of PipeLine and Gas TECHNOLOGY

Methods for determining the value of pipelines, Part 2

Here's how to determine whether excavated and salvaged pipe is an asset or liability.

David Howell, *Pipeline Equities*

The idea of excavating for salvage a pipeline that was laid 75 years ago may seem irrational—or at least very questionable—to those not acquainted with the industry. Most people would consider the undertaking to be solely for scrap value, and thus miss additional worth.

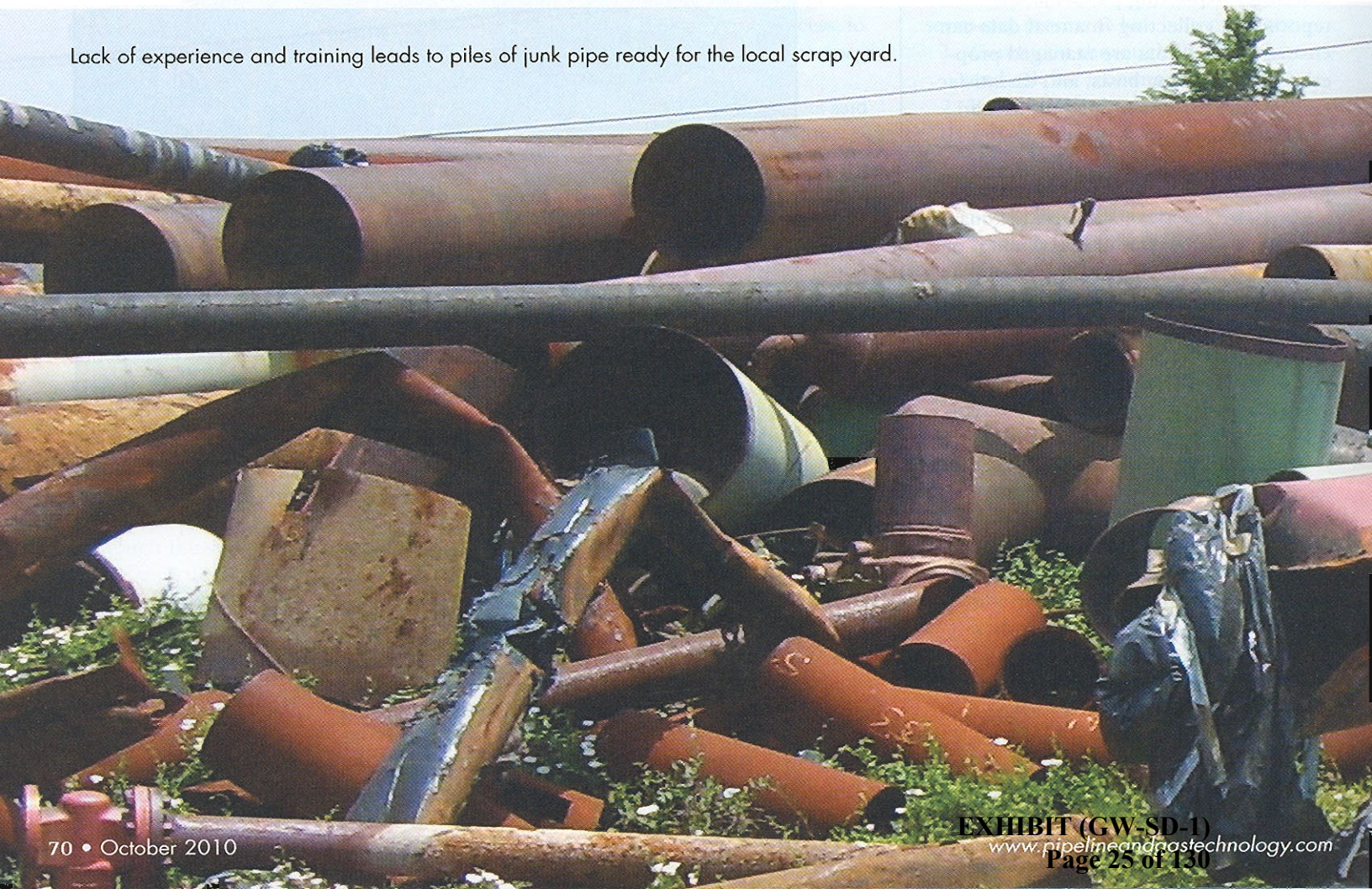
The answer lies in knowing how to assess the pipe and taking the guesswork out of the equation.

The standard formula for determining the overall value of a working pipeline involves net operating income (NOI) multiplied by a lifetime number. For example: $450,000 times 10 years equals $4.5 million.

An alternative to this type of valuation is the replacement-cost-new method, using the replacement cost of the pipeline based on today's depreciated cost to reflect the age of the pipeline. This method takes into account the construction and acquisition costs associated with replacing the old pipeline with a completely new pipeline. There are circumstances when, due to demand and scarcity, an easement, corridor or right-of-way might be worth more than the 70- or 80-year-old pipeline that lies in it.

Salvage value

Salvage-value determinants vary depending on the market. Almost all steel-related markets are weighted by the price of scrap at one time or another. One barometer for determining the value



Lack of experience and training leads to piles of junk pipe ready for the local scrap yard.

of good used pipe is to give it worth based on 70% of the price of new similar pipe. Normally, this is the highest price charged to an end user for used pipe.

However, there are several layers of wholesale prices between an end user and the salvage operator. Between the two are the hauling, grading, straightening, cleaning, beveling, cutting, loading, trucking and selling of the pipe. Often an entire line might be sold to one distributor, who then resells in truckload quantities to others who might sell by the piece. Each level of sale has a different price for a unique utility, and each level has a specific type of buyer. This is the nature of the structural-steel industry.

At its core, pipeline is just a tubular form of steel and is used in the same manner as any commodity. For a seller, the goal is to get as high up the sales chain as possible to reap the most for the product. A seller might never deal with end users at the 70%-price level, but instead could try to get the 50%-price level, leaving some 20% of margin for distributors who deliver to end users and manage the credit, collections, warranties and other problems associated with retail customers.

Net value

Most pipelines excavated for structural purposes are measured by weight on a per-ton basis. There are millions of feet of vintage pipeline in the U.S. of 8 5/8-inch diameter, formed via a construction method called "lap weld," which is a butt-weld-type construction.

Lap welding begins with a sheet of steel that is rolled into a tubular shape and welded at the point where the ends come together, or lap. Almost all pipe laid in the 1920s and 1930s for oil transportation was lap-weld construction with a uniform 0.322-inch wall thickness. This type of pipe weighs 28.55 pounds per foot and is called "standard wall." The joints are usually 20 feet long. Why 20 feet long? Because that was the length that fit on a mule-pulled wagon used to distribute pipe along rights-of-way.

If the price of scrap for "long iron," as scrap dealers term it (pieces of pipe longer than three feet long), is $200 per ton, for example, then standard-wall pipe is worth 10 cents per pound ($0.10 x 2,000 = $200). The 28.55-pound-per-foot standard-wall pipe is worth $2.85 per foot, at a minimum, because that is what it would bring as scrap after being hauled to a scrap yard. In any case, the

Price	Used	New (equivalent)
Price per ton	$200	$900
Price per pound	$0.10	$0.45
Price per foot of 28.55 lb/ft pipe	$2.85	$12.85

Table 1. Source: Pipeline Equities

Price spreads between new and used pipe can be substantial.

scrap establishes the minimum worth, and the price of new pipe at the mill represents the maximum worth.

The mill price might be $900 per ton (45 cents per pound). If new and old types of pipe were the exact same product (which they are not), then new pipe is worth $12.85 per foot ($0.45 x 28.55). For estimating purposes, the new-pipe price is $12.85 per foot, and the scrap price is $2.85 per foot. (See Table 1 for price comparisons.)

Somewhere in this range is a value for reuse of pipe for structural purpose. Also, estimators must take into account the value added at different stages going up the sales chain.

For example, one wholesale shop might cut the pipe into 10-foot lengths and bevel or finish each end of the pipe. Another shop might weld a 15-foot length to a 20-foot length of pipe to make a 35-foot joint for use in a particular piling job that requires that length.

Also, customizations are as varied as usage. Structural applications for used pipe include corrals, fence posts, flag poles, bridge railings, cattle guards or even reuse as a pipeline or driven as pile for strengthening supports.

One salvage yard in Oklahoma uses 22-inch-diameter pipe by splitting it longitudinally and welding plating on the sides to make feed troughs for cattle feedlots. That company, in particular, will satisfy healthy demand from the agriculture sector for many years.

All of this repurposed pipe is worth what the market will bear, based on price, condition, demand and availability. It is worth a great deal more than scrap. Yet, to a pipeliner, used pipe might be seen only as scrap.

The following costs for pipe removal are used when factoring net value:

- original purchase price of the pipe
- excavation cost
- transportation
- landowner compensation
- crop damage, and
- administration expense.

(See Table 2 for an overview of additional costs to factor into the net value of used pipe in today's market.)

These costs usually average $2.60 per foot, which is very close to breakeven at scrap values—if scrap prices were that high. There are many variables, but scrap should only be a backup plan in case all else fails and there is no structural market. (It is important to note that a non-qualified track-hoe operator can make scrap out of the best pipe ever laid. If he is not careful, he can ding, dent, scrape and bow any pipe into junkyard long iron.)

This is a fairly lengthy explanation of how to determine used-pipe value.

However, estimators might consider a short-cut method to arrive at a rough estimate: (sell price – costs) x line length x 90%. If a seller can sell used pipe for $400 per ton ($0.20 per pound, or $5.71 per foot), then after subtracting the take-up and cleaning costs, the pipe might be worth a net of $2.25 per foot. The seller can multiply by the length of the line and subtract 10% for losses and damaged pipe to come up with a value of about $2 per foot for the vintage pipe after removal.

Transportation and condition

Meanwhile, sellers and buyers must take into account the cost of transportation. At press time, trucking costs to bring pipe to Houston to be cleaned, straightened, cut, re-welded or worked in any way for the purpose of exporting through the Port of Houston was about $1.75 per loaded mile. Rates can vary from $1.50 to $2.25 per loaded mile.

In the course of due diligence, it is necessary to survey the pipeline by traveling the length of it to look for unforeseen hazards like lakes, rivers, expensive crops, marshland, wildlife refuge areas, other environmentally sensitive areas and encroachments of all kinds.

Inside a bell hole, an inspector checks a pipeline for wall thickness, coating, depth and soil conditions.

Additional cost factor	Approximate cost per foot
Purchase of pipe from owner	$0.35
Excavation	$1.90
Transportation	$0.15
Landowner compensation	$0.20

Table 2. Source: Pipeline Equities

Builders should consider additional cost factors when calculating the net worth of pipe.

Often, a home, barn or other structure has been erected over the right-of-way. In such case, a qualified operator must dig a bell hole over one section of the pipe to confirm the pipe is there, the depth it is buried, the size and its condition. During the inspection, a sample of pipe coating can be examined to determine its composition. This part of the investigation is particularly important, as asbestos presence can affect the cost for pipe removal and disposal of the residue of asbestos-containing materials.

Checking the pipe for type and quality of steel is important in determining its integrity. The best way to do this is to cut a section or coupon of the pipe and send it to a lab for testing for yield or burst as well as tensile or hardness, usually measured by pressure per square inch. Additional tests can be done in metallurgical laboratories to determine the various chemical elements inherent in the steel.

Conclusion

Many factors determine the value of vintage pipelines. A buyer or seller will not be able to ascertain a pipe's condition without thorough investigation. After all, a lot can happen in 60 or more years, especially underground.

The goal in appraising salvage value is to keep the pipe above scrap value and sell it into the structural market. Most destruction of good structural-grade steel pipe results from contractors or equipment operators who do not understand its value and treat it as junk. And junk it becomes in the hands of the uninformed, with value only for what it will bring at the local scrap yard. ■

David Howell is managing partner of Pipeline Equities, which salvages, rehabilitates and appraises pipelines. He is a designated senior right-of-way agent and the author of the Pipeline Recovery Manual and Pipeline Appraisal Handbook. He may be contacted at pipelineequities.com or davidhowell@pipelineequities.com.

For more on pipeline evaluation, see Methods for determining the value of pipelines, Part 1, in the September 2010 issue of PipeLine and Gas Technology, *or online at www.pipelineandgastechnology.com.*

III Site Inspection, Specifications of Pipeline and Photo Assessment

A general site inspection was made on October 24, 25, and 26 of 2017 for the purpose a first-hand observation of the facilities, environment, offices, personnel and pipeline along with a photo assessment to aid in determining the cost of decommissioning and dismantling the system known as the South Dakota Intrastate Pipeline. The interview portion of the assessment included at ten hour session with Bob Thomason on October 25, while riding the system, a two hour interview with vice president Gordon Woods on the night of October 25 regarding the general history of the pipeline, ownership and management structure, future plans and records regarding the pipeline. An additional three-hour interview was accomplished on October 26 with Bruce Easland, the counterpart supervisor to the south and overseer of that section of the pipeline system.

Specifications of the pipeline and environment

<u>178 miles in total length in Central South Dakota including:</u>
47 miles (248,160') of 8 5/8" or 8.625" outside diameter X .188" wall thickness
106 miles (559680') of 6 5/8" or 6.625" outside diameter X .156" wall thickness
25 miles (32,000') of 3 ½" or 3.5" outside diameter X .188 wall thickness

South Dakota Instrastate Pipeline is a transmission system transporting gas from the Northern Border Pipeline to customers of Montana Dakota Utilities (MDU) throughout central South Dakota. Customers include farm taps, cities and towns and commercial facilities.

Most all of the line is on a plain and in agricultural areas. The terrain is flat and accessible and for the most part follows public highways and county roads as mapped in South Dakota. About two to three percent of the line might be considered situated in hilly or rolling terrain.

The photo assessment notes streets and avenues as defined in the mapping system of South Dakota. Streets run east and west and avenues run north and south.

There are approximately eleven highway crossings, three railroad crossings and one hundred and five street, avenue, or county road crossings. All are uncased.

Alignment or as built sheets for the pipeline are located in the exhibits section of this report.

Tour

I was met at Aberdeen, South Dakota on October 25 by Bob Thomason, pipeline operations manager for the northernmost section of the line. We traveled to the starting point at the compressor station of Norther Border's line where the South Dakota Intrastate Pipeline begins. We were able to inspect all facilities of the system in the ensuing two days and used the time to interview and question Mr. Thomaston regarding the maintenance, operations, and circumstances relating to the pipeline. We started at the kickoff point where SDIP ties in to the Northern Border transmission system at the easternmost point of the system and followed the 8" westerly to the point of change over to a 6" line and then heading south to Pierre. Near the crossover point is the twenty-five mile 3 ½" lateral to the western most section of the system, a tap for the City of Mobridge, SD. Our tour took us to every part of the system east to west and then doubling back to the crossover point where the 6" heads south to Pierre.

Photo Assessment

I was able to take in excess of seventy- five photos and I believe they should be noted by anyone who uses this report. My experience tells me that eye level first hand observation reveals more than words on paper. Each picture has a caption explaining the picture taken and usually where it was taken. The observer can see the condition of the equipment, the terrain, type if customer, possible potential new customers and many other observation which can be made. From any standpoint, pictures take the place of many words.

Photo Assessment follows

1.) Northern Border Pipeline Compressor Station (CSP) located near Ipswich, South Dakota. Northern Border PIpelione picks up gas in Canada and delivers to the Midwest United States via a 42” line. This station compresses gas at a reported 950 psi to a South Dakota Intrastate Pipeline tie in.

2.) 4” Take off from Northern Border Pipeline to MINA Station of South Dakota Intrastate Pipeline. This installation is located just east of Northern Border’s compressor station and within a few hundred yards and along the same county road.

3.) Metering station for MINA. Four Inch line coming into the South Dakota Intrastate MINA station to measure gas coming from the Northern Border Compressor Station a few hundred yards away.

4.) Additional shut off valves pertinent to MINA Station for South Dakota Intrastate Pipeline.

5.) Interior of skid mounted outgoing metering /instrument station at South Dakota Intrastate Pipeline's MINA Station. These meters are mounted inside the skid mounted structure for additional protections from weather or other interference.

6.) The 8” pig launcher at the kick off MINA Station. There is a 4” intake from Northern Border and the outgoing line is 8” taking the gas to the various points in South Dakota Instrastate Pipeline system.

7.) SDIP 8” heading out of MINA Station on 128th Street or County Road 18. Right of Way is on the left side or where the sign is located. Visual is looking West.

8.) First Farm tap for Montana Dakota Utilities customer approximately five miles from starting point at Mina Station and Northern Border Compressor Station.

9.) Right of Way on left or south side looking west from first farm tap.

10.) Right of Way looking East from Highway 45.

11.) Right of Way looking West from Highway 45.

12.) Farm tap # 2 from kick off at MINA station along same route.

13.) Farm tap #3 approximately eight miles from start of line at compressor station.

14.) Line turns south on 358th Avenue for five miles. (See markers on the right of road in ditch)

15.) Farm tap serving Montana Dakota Utilities customer at 358th Avenue near 130th Street.

16.) Farm tap on 358th Avenue at 131st Street

17.) Additional farm tap on 358th Avenue. MBU customer, delivered by SDIP

18.) Tap or meter station for City of Ipswich. One of several cities served Montana Dakota Utilities with gas transported by South Dakota Instrastate Pipeline.

19.) Farm tap on 133rd Street as Right of Way turns west.

20.) Main line valve and rectifier station at 133rd Street and 355th Avenue.

21.) Farm tap near Main Line Valve 133 (above)

22.) Tap for City of Roscoe, South Dakota, located on 133rd Street at Highway 247 near grain drying plant.

23.) Newest farm tap on system located near Roscoe.

24.) Right of Way (8”) looking east from farm tap in picture # 23.

25.) 8” Right of way looking west from same farm tap. Many of the easements run along highways.

26.) Main Line Valve Station (8”) at 334th Avenue. Pipeline marker on the left appears at one-half mile intervals along the route.


27.) Right of way (8”) looking east at MLV 113 and 334th Avenue.

28.) Same 8” right of way looking west from MLV 113 and 334th Avenue.

29.) Beginning of 6” line with this 6” pig launcher.

30.) 8” pig receiver at same location coming from kick off of system at Northern Border Compressor station.

31.) Middle blue valves are crossovers from 8” to 6” with the aforementioned 6” pig launcher on the right and the 8” pig receiver on the left.

32.) 8” Right of way coming into crossover station
at picture number 31. View is looking East from Highway 47.

33.) 6” Right of Way looking west from crossover and 6” kickoff at
Highway 47.

34.) City of Bowdle, SD tap, located at 133rd Street and 325th Avenue. MDU supplies gas to many points in north central South Dakota.

35.) 6" Right of Way looking east at 133rd Street and 322nd Avenue.

36.) 6” Right of Way looking west on 133rd near 322nd Avenue.

37.) Main line valve station (MLV101) at end of east/west 6”. At this point the 6” heads south while the three inch lateral continues west.

38.) Main Line Valve for 3” lateral heading west. At this point the 6” line from the east turns south toward Pierre.

39.) 3” lateral in Right of Way heading west at 133rd Street and 310th Avenue.

40.) Right of Way (3”) along transmission line corridor belonging to Montana Dakota Utilities located looking west at 133rd Street and Highway 83

41.) Incoming 3” supplies gas to City of Selby at this tap located near 133rd Street and 306th Avenue.

42.) Right of Way for 3” lateral looking South on 306th Avenue.

43.) 3” Right of Way looking west at 129th Street

44.) Main Line Valve # 13 for 3” East-West lateral line, located at 129th Street and 301st Avenue.

45.) Right of Way for 3” lateral heading west.

46.) 3” Right of Way heading south on 300th Avenue at Highway 12

47.) 3” Right of Way looking west at Highway 12 and 300th Avenue.

48.) Tap for City of Glenham off of 3” lateral.

49.) Terminal of Eastbound 3” lateral at City of Mobridge. This is also a tap for City of Mobridge where MDU supplies gas through South Dakota Instrastate Pipeline.

50.) In the last picture we came to the terminal point of the East West 3” lateral to Mobridge. We come back to this picture where the 3” and 6” separated and the 3” went west and the 6” turned south toward Pierre. This is the 6” Main Line Valve # 83 for the 6” line after turning south from the station of the 3” line to the west.

51.) 6” Right of Way looking north at 310th Avenue at 140th Street

52.) 6” Right of Way looking south on 310th Avenue at 140th Street.

53.) Farm tap on 6” ROW on 310 Avenue at Highway 20

54.) 6” ROW looking south on 311th Avenue at Highway 20

55.) 6” Pigging station with launcher and receiver alongside Main Line Valve Station Number 63. Located on 311th Avenue.

56.) 6” Right of Way looking North at 311th Avenue near MLV # 63 (above).

59.) Main Line Valve Station (6”) @ 311th Avenue near 165th Street.


60.) Right of Way (6”) looking north at 311th Avenue @ 165th Street

61.) Sixth Inch Right of Way looking south on 311th Avenue@ 165th Street.


62.) City of Agar tap.

63.) 6” ROW heading south on 305th Avenue @ 176th Street.

64.) Main Line Valve Station # 36 (for 6” line) on 305th Avenue.

65.) Tap for City of Onida, South Dakota.


66.) 6” Right of Way looking north at 305th Avenue

67.) 6" Right of Way looking south on 305th Avenue

68.) Main Line Valve Station # 29 at 305th Avenue and 186th Street.

69.) 6” ROW looking east on 197th Street and US Highway 83

70.) Farm tap off 6” at 198th Street and 304th Avenue.

71.) Valve station at Highways 14 and US 83.

72.) 6” Right of Way looking east at Highways 14 & US 83

73.) 6” Right of Way looking west at Highway 14 & US 83

74.) Tap at Welding Station (Highway 14 & US 83) 3 miles from Pierre

75.) Pig receiver at terminal for 6” line at Pierre.

76.) Metering facilities locating at terminal in Pierre.

77.) Valves supplying gas to Montana Dakota Utilities and the City of Pierre.

78.) Pierre offices of SDIP at terminal of pipeline.

IV Cost considerations for South Dakota Intrastate Pipeline Removal project. Factors of labor and equipment in determining cost.

Time Factor

It is determined that the job with one spread or crew would take a total of 500 labor and equipment days. We have decided to complete the project in within one year and use two crews either leap frog fashion or two crews working at separate ends of portions of the line. Each crew would be utilized for two hundred-fifty days. If it appeared we could not make the schedule or weather problems pursued, a third crew would be installed. Pipeline Equities will do what is needed in terms of management, labor and equipment to finish the job in one work season or two hundred and fifty days.

Equipment: The schedule 1-11 below represents the basic equipment we will be renting, leasing or obtaining in South Dakota or bringing in from another location. It is not ascertained as to the exact starting date of the job. As prices and availability change, we have chosen to wait until the starting dates are established to finalize the exact for accepting delivery of necessary equipment. There will not be a cost factor differential of more than six percent plus or minus.

1.) Rental of track hoe (2 @ 250 days) lead hoe
2.) Rental of track hoe (2X 250 days) terrace hoe
3.) Rental for front end loader (2 X 250 days)
4.) Rental for bull dozer (2 X 250 days)
5.) Rental for mobile field office (1 X 250 days)
6.) Rental for crew vans (2 X 250 days)
7.) Rental of equipment trailer (2 x 250 days)
8.) Rental of foreman vehicle (2X 250 days)
9.) Rental of supervisor vehicle (1 X 250 days)
10.) Rental of two standby haul trucks (2 X 250)
11.) Rental of front end loader for yard

Labor Depending on the year and season started will dictate whether and how many laborers will be brought in from other locales or how many will be hired locally or in South Dakota. The starting date of the project will determine this factor. We do not anticipate the cost factor to vary more than eight – ten percent.

1.) Operator for track hoe (2 X 250 days) lead
2.) Operator for track hoe (2 X 250 days) terrace
3.) Operator for front end loader (2 X 250 days)
4.) Operator for bulldozers (2 X 250 days)
5.) Secretary in mobile field office (1 X 250 days)
6.) Pipe cutters (4 X 250 days)
7.) Driver for haul trucks (2 X 250 days)
8.) Crew foreman (2 X 250 days)
9.) Flagman (4 X 250 days

10.) Roustabouts (4 X 250 days)

11.) Environmental consultant

12.) Safety Consultant

13.) Right of way agent

14.) Yard manager and loader, unloader

Miscellaneous We were able to do some scouting on the survey trip in October, 2017 regarding some factors listed below. There should be no problem finding affordable yard rental space throughout the length of the pipeline. We do anticipate lengthier hauls for the men from where they might be staying which could be uncertain costs.

1.) Yard rental expense
2.) Lodging for men and food per diem
3.) Insurance
4.) Home office expense
5.) Grouting equipment for mixing and pumping

Disposition of pipe We have not made final decisions regarding the disposition of the pipe to be salvaged or dismantled. For the most part, the pipe has very thin wall and is thus unfit for structural use. That means the pipe must be scrapped, but cleaned first. Preliminary investigations indicate a toss-up between cleaning and straightening the pipe to prepare for scrap or going to a landfill. It there is any contamination in the form of residue or any build up on the interior of the pipe then a landfill is the only option. Due to the thin wall nature of pipe, most will be bowed or bent making for more loads than weight would normally indicate.

1.) Trucking /transportation of pipe
2.) Landfill disposal expense or rehabilitation expense of pipe

Other considerations The above uncertain conditions have led us to the conclusion that a turn-key method of calculating cost of removal to operator is the best approach. We will therefore determine the overall or cost per foot dismantling cost as our basis for doing this job.

1.) Contingencies
2.) Profit

V Conclusions and Cost of Job

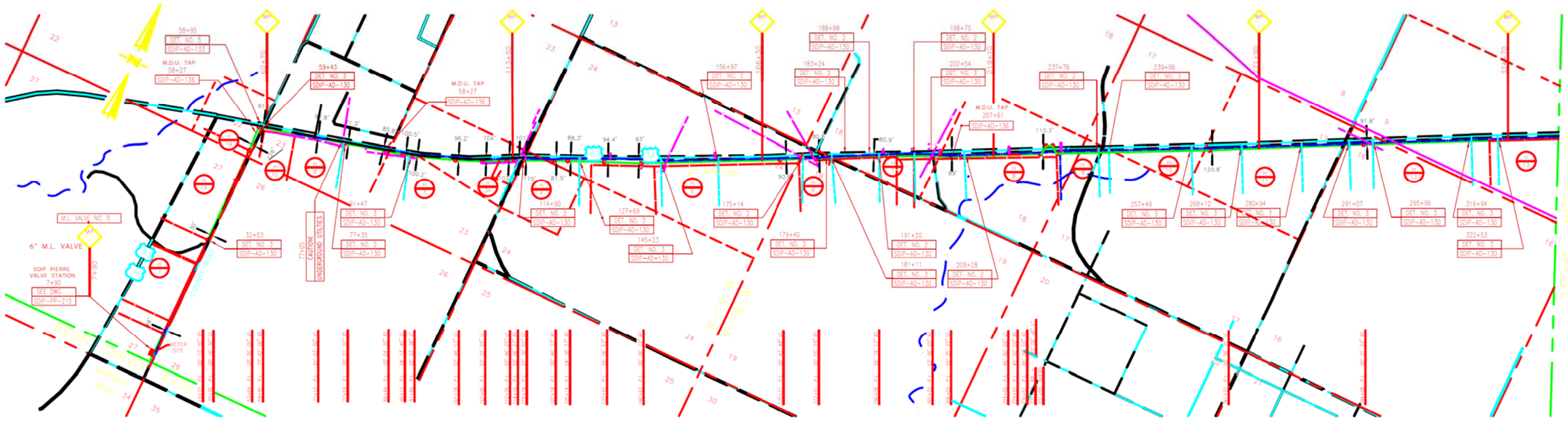
Pipeline Equities has determined that due to the uncertainty of the starting date, the uncertainty of the labor market and variations of equipment procurement costs as well as delivery cost involved, the only viable method for determining an accurate price that can be sustained for the following twelve months is an overall turnkey price to South Dakota Instrastate Pipeline.

With this method, Pipeline Equities will use the Sample Contract of the Design Builder Institute of America (located in the Exhibits Section of this report) as the basis for the contract between Pipeline Equities and South Dakota Instrastate Pipeline.

On a turnkey basis, Pipeline Equities will perform the work of Dismantling, Decommissioning, and Deconstruction of the 178 miles of gas transmission system known as the South Dakota Instrastate Pipeline.

Pipeline Equities will bill at the rate of $13.21 per foot for this service.

This offer or proposal is valid for twelve months from this date of November 7, 2017.



ITEM	MATERIAL DESCRIPTION	QUAN.	ITEM	MATERIAL DESCRIPTION	QUAN.

LEGEND

- Interstate Highway
- Federal Highway
- State Highway
- Mile Post
- Equation
- Foreign Pipeline
- Power Line
- Telephone Line
- Water Line
- Underground Cable
- Fence
- Valve (Show Line Size)
- Check Valve
- Relief Valve
- Meter Station
- P/L Warning Sign
- Bonding Station
- Sewer Line
- Rectifier
- Conc. Weight
- Anchor
- Anode Bed
- Elect. Test Lead
- Line Pipe Wall Thickness Change
- Transition Sleeve
- Aerial Marker

NO.	DATE	REVISION	DWN.	CHKD.	APP.	DATE
1	9/93	GENERAL AS-BUILT	TWCE	F.S.		11/93
2	4/94	ADDED RECEIVER, PIERRE VALVE STATION	TWCE	F.S.		
3	9/94	CORRECTED M.P. STATIONING	TWCE			

FIELD NOTES	
BOOK	PAGES
R619	2-24

GENERAL NOTES

1) CATHODIC PROTECTION IS INSTALLED AT ALL MILE POSTS AND AT EACH R.R., STREAM OR CREEK AND ROAD CROSSINGS.

GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
5301 Hollister Third Floor
Houston, Texas 77040, (713) 690-1815

SOUTH DAKOTA INTRASTATE PIPELINE
6" GENERAL PIPELINE ROUTE
STA. 4+00 TO STA. 335+45

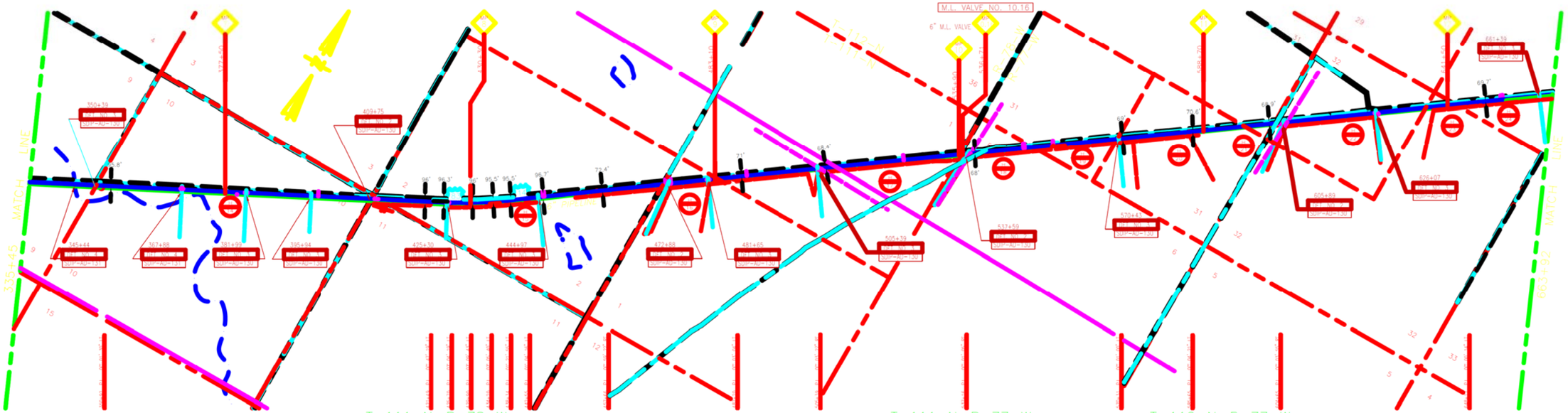
DRAWN BY: M.A.C.	DATE: 11/92	APPROVED BY:	DATE:
TRACED BY:	DATE:	APPROVED BY:	
CHECKED BY: D.S.	DATE: 12/92		
A.F.E. No.	SCALE: 1" = 1000'	DRAWING NUMBER SDIP-AP-101	REV. 3
W.O.	SHEET 1 of 29		

ACAD Ref. Name SDIPA001.DWG

ROW | TRACT | OWNER | RODS

JERRY W. & SHERYL J. HAWKINS | JERRY W. & SHERYL J. HAWKINS | STAN CALDWELL | STAN CALDWELL | LYLE TYLER | LYLE TYLER | LYLE TYLER | MIRIAN EBERHARD ROSEMARY TRASK | GORDON BAUMGART | RONALD & RITA BAUMGART | ROBERT SPAID

COUNTY AND STATE: HUGHES COUNTY, SOUTH DAKOTA



STATIONING

TOE SLOPE 345+10
345+35 □ 36" RCP. 43' LT.
345+44 □ DITCH
345+44 □ 36" RCP. 43' LT.
345+55 □ 30' DIRT D/W
346+02 TOE SLOPE
346+21 COR. FC. 5' RT.
347+21 24" RCP. 37' LT.
347+81 □ 30' DIRT D/W.
348+41 CONC. ROW MARKER 5.2' FT. LT.
350+16 □ DITCH 40' LT.
350+76 NAIL IN EDGE ASPH. 89.7' LT.
351+34 □ RD. 99.8' LT.
351+56 CONC. ROW MARKER 5' RT.
□ 2'-9.2'x 3' BOX CULVERT
22.2' LT.
367+88 TOE SLOPE
368+30 TOP OF BANK
380+03 CONC. ROW MARKER 5' RT
24" RCP. 38' LT.
□ 30' DIRT D/W.
□ 48" RCP. 45.2' LT.
□ 24" RCP. 44' LT.
□ OIL RD.
TOP OF BANK
TOE SLOPE
COR. FC. 6.5' RT.
□ 24" RCP. 41' LT.
381+99 NAIL IN EDGE ASPH. 80.9' LT.
391+94 □ RD. 99' LT.
397+47 □ 40' DIRT D/W
409+44 □ DITCH 40.3' LT.
409+49 NAIL IN EDGE ASPH. 80.9' LT.
409+75 □ RD. 96.3' LT.
409+88 FC. 5' RT.
410+03 □ DITCH 40' LT.
410+13 NAIL IN EDGE ASPH. 81' LT.
410+27 □ RD. 99' LT.
421+49 FC. 5' RT.
425+30 □ DITCH 38' LT.
425+70 NAIL IN EDGE ASPH. 80.6' LT.
429+90 □ RD. 95.5 LT.
FC. 5' RT.
434+20 □ DITCH 39' LT.
438+34 NAIL IN EDGE ASPH. 81.3' LT.
□ RD. 93.5' LT.
FC. 5' RT.
TELE. MARKER 5' RT.
442+55 □ DITCH 41' LT.
NAIL IN EDGE ASPH. 82.5' LT.
444+97 □ RD. 96.7' LT.
FC. 5' RT.
□ 30' DIRT D/W
446+06 □ 18" RCP. 42' LT.
446+28 □ 18" RCP. 42' LT.
446+56 FC. 5.5' RT.
457+66 □ DITCH 22' LT.
NAIL IN EDGE ASPH. 58.6' LT.
□ RD. 72.4' LT.
472+46 COR. FC. 5' RT.
472+51 □ 24" RCP. 28' LT.
472+52 TOE SLOPE
472+72 TOP OF BANK
472+88 □ OIL RD.
473+04 TOP OF BANK
473+25 TOE SLOPE
473+26 □ 24" RCP. 6' LT.
473+30 COR. FC. 5.9' RT.
474+36 □ RD.
473+60 □ 24" RCP. 25' LT.
481+16 □ BGN. 12" RCP. 7.1' LT.
481+65 □ 30' DIRT D/W
482+16 □ END 12" RCP. 7.1' LT.
487+20 □ DITCH 21' LT.
NAIL IN EDGE ASPH. 56.3' LT.
□ RD. 71' LT.
FC. 5.5' RT.
490+00 □ 24" RCP. 25' LT.
503+06 COR. FC. 6.5' RT.
505+22 COR. FC. 7.5' RT.
505+39 □ 24" RCP. 28' LT.
505+63 TELE. MARKER 5' RT.
506+20 PWR. TOWER LN.
523+99 □ 48" RCP. 12.6' LT.
530+67 FC. 7.3' RT.
532+93 FC. 31' RT.
536+81 COR. FC. 25.5' RT.
537+16 □ DITCH 20' LT.
NAIL IN EDGE ASPH. 54'
□ RD. 68' LT.
TELE. MARKER 5' RT.
537+32 TOE SLOPE
537+44 TOP OF BANK
537+59 □ OIL RD.
537+75 TOP OF BANK
537+94 TOE SLOPE
538+20 TELE. MARKER 9.4' RT.
538+22 COR. FC. 8.8' RT
538+23 PWR. LN.
549+87 □ 24" RCP. 16.2' LT.
550+09 □ 24" RCP. 16' LT.
556+28 □ 3'x 6' CONC. CROSSING
□ DITCH 22' LT.
NAIL IN EDGE ASPH. 55.3'
570+31 □ RD. 69' LT.
□ 30' DIRT D/W
570+43 COR. FC. 5.5' RT.
573+41 □ DITCH 21' LT.
585+65 NAIL IN EDGE ASPH. 56.4'
□ RD. 70.6' LT.
COR. FC. 5.5' RT.
604+65 □ DITCH 17' LT.
NAIL IN EDGE ASPH. 54.6' LT.
□ RD. 68.9' LT.
605+27 CONC. ROW MARKER 5.5' RT.
605+48 TOE SLOPE
605+57 □ 15" RCP. 15' LT.
605+73 TOP OF BANK
606+06 □ 15" RCP. 15' LT.
606+24 TOP OF BANK
606+51 COR. FC. 6' RT.
606+81 PWR. LN.
625+55 COR. FC. 6' RT.
625+82 □ 15" RCP. 13' LT.
626+07 □ 50' DIRT D/W
626+32 □ 15" RCP. 13' LT.
626+57 CONC. ROW MARKER 5.4' RT.
638+55 COR. FC. 5.9' RT
648+17 □ DITCH 25' LT.
NAIL IN EDGE ASPH. 55.7' LT.
□ RD. 69.7' LT.
FC. 5.5' RT.
653+05 □ 15" RCP. 22.5° LT.
653+26 □ 15" RCP. 22.5° LT.
653+45 □ 15" RCP. 22.5° LT.
661+39 □ 30' DIRT D/W

TIE-INS

3433+64 T.I. #37/ML 567
3444+24 ML 568
3444+84 ML 569
3445+42 ML 570
3445+02 ML 571
3446+61 ML 72
3447+21 ML 573
3447+81 ML 574
3448+41 ML 575
3450+16 T.I. #34/ML 578
3450+76 ML 80
3451+34 ML 79
3451+56 T.I. #38/ML 581
4010+21 T.I. #36/ML 680
4409+30 T.I. #35/ML 679
4409+72 RB #35
4444+50 T.I. #39/ML 738
4445+12 ML 739
4445+71 ML 740
4446+24 T.I. #40/ML 741
4471+29 T.I. #44/ML 785
4471+74 ML 786
4472+26 T.I. #41/ML 787
4722+78 RB #36
4723+27 T.I. #42/ML 788
4723+87 ML 789
4724+46 ML 790
4725+04 ML 791
5396+12 ML 895
5396+24 A.T.I. #555
5396+36 A.T.I. #554
5396+59 A.T.I. #552
5396+66 A.T.I. #553
5396+71 ML M.L. 10.16 □
5396+77 A.T.I. #551
5396+84 A.T.I. #550
5397+03 T.I. 481/ML 897
CUT OUT FOR MLV #10 TIE "-IN
5397+04 T.I. #48/ML 897
5397+12 A.T.I. #549
5397+24 A.T.I. #548
5397+59 □ OIL ROAD
5398+00 T.I. #52/ML 898
5398+36 T.I. #51
5398+60 T.I. #50/ML 899
5399+19 T.I. #49/ML 900
5399+66 T.I. #53/ML 901
5548+57 T.I. #47/ML 916
5549+16 ML 917
5549+65 ML 918
5550+15 ML 919
5550+64 ML 920
5551+13 ML 921
5552+33 ML 923
5552+92 ML 924
5553+52 ML 925
5554+12 ML 926
5554+72 ML 927
5555+30 ML 928
5555+89 T.I. #54/ML 929
5556+99.5 ML 931
6056+54 T.I. #59/ML 1015
6066+04 RB #38
6066+3.5
6066+53 T.I. #58
6066+75 T.I. #57/ML 1017
6607+89 ML 1018
6608+33 T.I. #60/ML 1019
6618+27 ML 1036
6622+40 ML 1043
STA.
6628+35 T.I. #55/ML 1048
6625+96 ML 1049
6626+54 ML 1050
6627+14 ML 1051

ITEM	MATERIAL DESCRIPTION	QUAN.	ITEM	MATERIAL DESCRIPTION	QUAN.

LEGEND

- Interstate Highway
- Federal Highway
- State Highway
- Mile Post
- Equation
- Foreign Pipeline
- Sewer Line
- Telephone Line
- Water Line
- Underground Cable
- Fence
- Valve (Show Line Size)
- Check Valve
- Relief Valve
- Meter Station
- P/L Warning Sign
- Bonding Station
- Sewer Line
- Rectifier
- Conc. Weight
- Anchor
- Anode Bed
- Elect. Test Lead
- Line Pipe Wall Thickness Change
- Transition Sleeve
- Aerial Marker

NO.	DATE	REVISION	DWN	CHKD	APP.	DATE
1	8/93	GENERAL ASBUILT	HWF			7/16/93
2	9/94	CORRECTED M.P. STATIONING	HWF			

FIELD NOTES: BOOK 8618, PAGES 24-30, 1-4, 8651

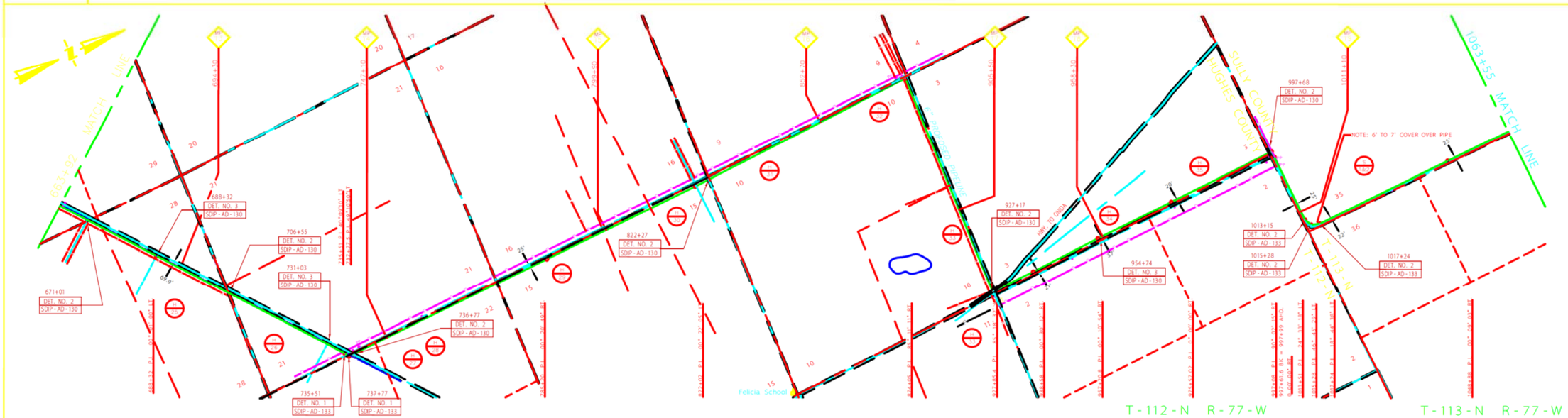
GENERAL NOTES

1) CATHODIC PROTECTION IS INSTALLED AT ALL MILE POSTS AND AT EACH R.R., STREAM OR CREEK AND ROAD CROSSINGS.

GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
5301 Hollister Third Floor
Houston, Texas 77040 (713) 690-7615

SOUTH DAKOTA INTRASTATE PIPELINE
6" GENERAL PIPELINE ROUTE
STA. 335+45 TO STA. 663+92

DRAWN BY: M.A.C. DATE: 11/93 | APPROVED BY: | DATE:
TRACED BY: | DATE: | APPROVED BY: | DATE:
CHECKED BY: D.S. DATE: 12/92
F.F. NO. | SCALE: 1" = 1000' | DRAWING NUMBER: SDIP-ATC-101 | REV.
F.B. | SHEET 2 of 29



ITEM	MATERIAL DESCRIPTION	QUAN.	ITEM	MATERIAL DESCRIPTION	QUAN.

LEGEND

- Interstate Highway
- Federal Highway
- State Highway
- Mile Post
- Equation
- Foreign Pipeline
- Power Line
- Telephone Line
- Water Line
- Underground Cable
- Fence
- Valve (Show Line Size)
- Check Valve
- Relief Valve
- Meter Station
- P/L Warning Sign
- Bonding Station
- Sewer Line
- Rectifier
- Conc. Weight
- Anchor
- Anode Bed
- Elect. Test Lead
- Line Pipe Wall Thickness Change
- Transition Sleeve
- Aerial Marker

NO.	DATE	REVISION	DWN.	CHKD.	APP.	DATE
1	04/14/93	GENERAL REVISION	TWCE			
2	09/29/93	GENERAL AS-BUILT	TWCE	FS		11/16/93
3	09/26/94	CORRECTED MP STATIONING	TWCE			

FIELD NOTES	
BOOK	PAGES
621	4-6
	13-16
623	26-28
	18,19

GENERAL NOTES

1.) CATHODIC PROTECTION IS INSTALLED AT ALL MILE POSTS AND AT EACH R.R., STREAM OR CREEK AND ROAD CROSSINGS.

GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
5301 Hollister Third Floor
Houston, Texas, 77040, (713) 690-1915

SOUTH DAKOTA INTRASTATE PIPELINE
6" GENERAL PIPELINE ROUTE
STA. 663+92 TO STA. 1063+55

DRAWN BY: J.M. DATE: 12/92 APPROVED BY: DATE:
TRACED BY: DATE: APPROVED BY:
CHECKED BY: D.S. DATE: 12/92
A.F.E. No. SCALE: 1" = 1000'
W.O. SHEET 3 of 29
DRAWING NUMBER SDIP-AP-103 REV. 3

ACAD Ref. Name SDIPA003.DWG

EXHIBIT (GW-SD-1)

ROW TRACT	S 3	S 4	S 5	S 6	S 7	S 8	S 9	S 10	S 11	S 12
OWNER	CHARLES EUGENE WARRINER	CLAYTON COLSON	MELVIN JOHNSON	MELVIN JOHNSON	RICHARD HYDE	MARTHA MURPHY	RALPH LETTLER	MARGARET KESSLER TRUST	PEC FAMILY	QUINCY JOHNSON
RODS										

MATCH LINE 1063+55

MATCH LINE 1392+45

COUNTY AND STATE

SULLY COUNTY, SOUTH DAKOTA

STATIONING

1067+29	☐ 16' DIRT FARM RD.
1076+90	☐ 18" RCP. 5' RT.
1081+62	TOP OF BANK RD.
1085+57	TOP OF BANK DITCH
1085+62	TOE SLOPE
1085+77	☐ 20' BRIDGE, CONC. 0.1' RT.
1085+92	TOE SLOPE
1085+97	TOP OF BANK
1090+40	TOP OF BANK RD. (POT)
1098+06	☐ 18" RCP. 4.3' RT.
1108+54	1/2" I.R. IN EDGE RD. 10.2' RT. ☐ DIRT RD. 22' RT. TELE. BOX 54' RT.
1119+69	TOE SLOPE
1119+81	BEG. ☐ 24" RCP. 0.5' LT.
1119+86	EDGE RD. TOP OF BANK
1119+99	☐ GRAVEL RD.
1120+12	EDGE RD. TOP OF BANK
1120+23	END ☐ 24" RCP. 1' LT.
1120+28	TOE SLOPE
1120+29	COR. FC. (TBM) 8.8' LT.
1131+71	TOP OF BANK
1131+80	TOE SLOPE
1131+93	☐ 10'x 10' BOX BRIDGE 6.7' RT.
1132+06	TOE SLOPE
1132+15	TOP OF BANK
1146+44	COR. FC. 6' LT.
1149+56	1/2" I.R. IN EDGE RD. 14.2' LT. ☐ RD. 28' LT.
1161+87	☐ 18" RCP. 12.5' RT.
1170+88	☐ 18" RCP. 11.2' RT.
1172+53	1/2" I.R. IN EDGE RD. 12.6' RT. ☐ RD. 26' RT. (TBM) COR. FC. 6' LT.
1172+55	TOE SLOPE
1172+66	BEG. ☐ 24" RCP. 0.6' LT.
1172+78	TOP OF BANK EDGE RD.
1172+88	☐ GRAVEL RD.
1172+98	TOP OF BANK EDGE RD.
1173+08	END ☐ 24" RCP. 2.5' LT.
1173+18	TOE SLOPE
1173+20	COR. FC. 8.8' LT.
1173+22	PWR. LN.
1182+87	☐ 15" RCP. 13.8' RT.
1199+31	COR. FC. 9' LT.
1201+88	☐ 15" RCP. 13.2' RT.
1211+82	1/2" I.R. IN EDGE RD. 14.5' RT. ☐ RD. 26' RT. FC. 6' LT.
1225+46	COR. FC. 6.6' LT.
1238+37	☐ 18" RCP. 11.8' RT.
1249+49	1/2" I.R. IN EDGE RD. 13.8' RT. ☐ RD. 27' RT.
1252+04	☐ 30' DIRT D/W
1257+89	☐ 3' HI x 4' WD. CONC. BRIDGE 15' RT.
1278+39	BGN. PWR. LN. 7' LT.
1278+45	TOE SLOPE
1278+54	BEG. ☐ 24" RCP. 5' LT.
1278+58	TOP OF BANK & EDGE RD.
1278+71	☐ GRAVEL RD.
1278+84	TOP OF BANK & EDGE RD.
1278+94	END ☐ 24" RCP. 2.5' LT.
1278+98	TOE SLOPE
1279+05	PWR. LN.
1279+08	COR. FC. 10.5' LT.
1279+10	1/2" I.R. IN EDGE RD. 8.2' RT. ☐ RD. 23' RT. FC. 10.5' LT.
1281+68	☐ 30' DIRT D/W
1283+00	END PWR. LN. 11.8' LT.
1296+87	☐ 18" CMP. 1.7' RT.
1322+38	1/2" I.R. IN EDGE RD. 16.4' RT. ☐ RD. 32' RT. FC. 5.5' LT.
1331+68	COR. FC. 6' LT.
1336+73	60D NAIL IN EDGE RD. 9' RT. ☐ RD. 24' RT.
1339+09	☐ 18" CMP. 3.4' RT.
1361+87	60D NAIL IN EDGE RD. 10.8' RT. ☐ RD. 24' RT.
1390+07	60D NAIL IN EDGE RD. 9.2' RT. ☐ RD. 24' RT.

TIE - INS

1069+91	T.I. #91/ML 1804
1069+95	T.I. #92/ML 1804
1070+41	T.I. #90/ML 1805
1081+15	ML 1825
1081+51	ML 1826
1092+98	ML 1846(A)
1093+55	ML 1849
1119+29	T.I. #93/ML 1892
1119+80	RB 5
1120+29	T.I. #94
1120+32	T.I. #95/ML 1893
1130+92	T.I. #106/ML 1911
1131+41	RB 3 - T.I. #103
1131+90	RB #139
1132+40	RB 140
1132+88	T.I. #104
1133+57	T.I. #105/ML 1916
1172+46	T.I. #96/ML 1984
1172+92	RB 6
1173+45	T.I. #97/ML 1985
1278+24	T.I. #98/ML 2163
1278+69	RB 7
1279+22	T.I. #101/ML 2164
1279+80	ML 2165
1280+40	ML 2166
1280+99	ML 2167
1281+58	ML 2168
1282+18	ML 2169
1282+78	ML 2170
1283+37	ML 2171
1283+96	ML 2172
1359+72	T.I. #107/ML 2300

DWG. REF

CODE CLASS

ITEM	MATERIAL DESCRIPTION	QUAN.	ITEM	MATERIAL DESCRIPTION	QUAN.

LEGEND

- Interstate Highway
- Federal Highway
- State Highway
- Mile Post
- Equation
- Foreign Pipeline
- Power Line
- Telephone Line
- Water Line
- Underground Cable
- Fence
- Valve (Show Line Size)
- Check Valve
- Relief Valve
- Meter Station
- P/L Warning Sign
- Bonding Station
- Sewer Line
- Rectifier
- Conc. Weight
- Anchor
- Anode Bed
- Elect. Test Lead
- Line Pipe Wall Thickness Change
- Transition Sleeve
- Aerial Marker

	DATE		DWN.	CHKD.	APP.	DATE
1	04/21/93	GENERAL REVISION	TWCE			
2	9/93	GENERAL AS-BUILT	TWCE	FS		1/16/93
3	9/94	CORRECTED MP STATIONING	TWCE			

FIELD NOTES	
BOOK	PAGES
R621	16-22

GENERAL NOTES

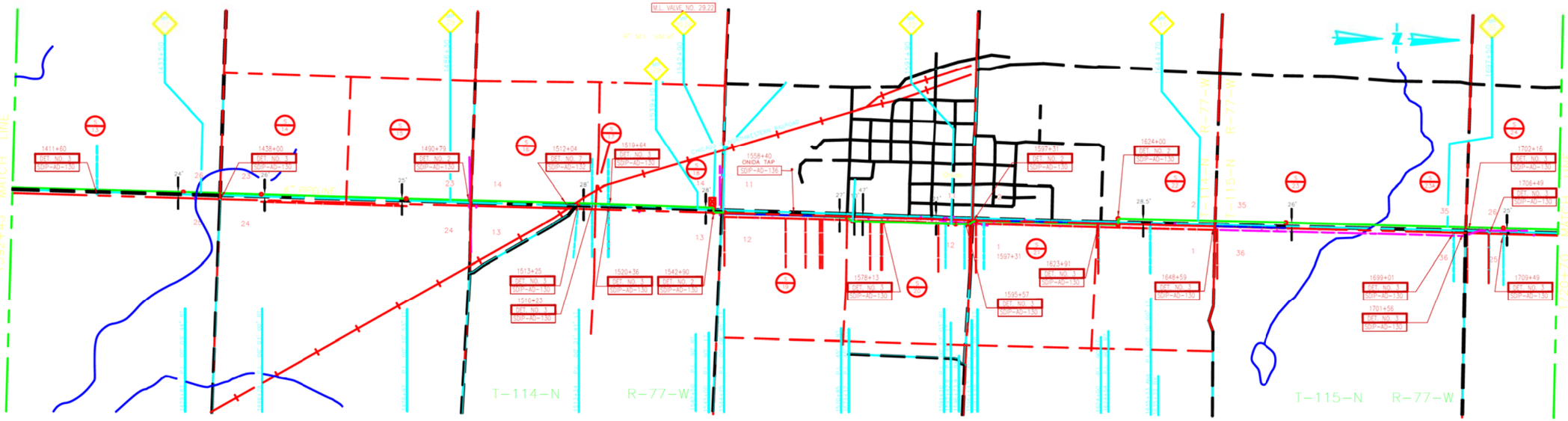
1.) CATHODIC PROTECTION IS INSTALLED AT ALL MILE POSTS AND AT EACH R.R., STREAM OR CREEK AND ROAD CROSSINGS.

GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
5301 Hollister Third Floor
Houston, Texas, 77040, (713) 690-1955

SOUTH DAKOTA INTRASTATE PIPELINE
6" GENERAL PIPELINE ROUTE
STA. 1063+55 TO STA. 1392+45

DRAWN BY: M.A.C.	DATE: 11/92	APPROVED BY:	DATE:
TRACED BY:	DATE:	APPROVED BY:	
CHECKED BY: D.S.	DATE: 12/92		
A.F.E. No.	SCALE: 1" = 1000'	DRAWING NUMBER SDIP-AP-104	REV. 3
W.O.	SHEET 4 of 29		

ACAD Ref. Name SDIPA004.DWG



ROW	TRACT	S 13	S 14	S 15	S 16	S 17	S 18	S 19	S 20	S 21	S 22	S 23	S 23A	S 24	
OWNER	MATCH LINE	QUINCY JOHNSON	KENNETH GILLIES & HELEN GEORGE, TRUSTEES	PATRICIA SMITH	KEN HUSE & SONS	LAVON VETTER FAMILY TRUST	JAMES BRINK	WILLIAM SPEARS	JAMES L. SUTTON	JAMES L. SUTTON	BOB & MARILYN SPAID	JAC, INC.	WILLIAM SPEARS	JAMES PARKER	MATCH LINE
RODS	1392+45														1720+70

COUNTY AND STATE: S U L L Y C O U N T Y , S O U T H D A K O T A

ITEM	MATERIAL DESCRIPTION	QUAN.	ITEM	MATERIAL DESCRIPTION	QUAN.

LEGEND

- Interstate Highway
- Federal Highway
- State Highway
- ◇ Mile Post
- ★ Equation
- Foreign Pipeline
- Power Line
- Telephone Line
- Water Line
- Underground Cable
- Fence
- Valve (Show Line Size)
- Check Valve
- Relief Valve
- Meter Station
- P/L Warning Sign
- Bonding Station
- Sewer Line
- Rectifier
- Conc. Weight
- Anchor
- △ Anode Bed
- Elect. Test Lead
- Line Pipe Wall Thickness Change
- Transition Sleeve
- △ Aerial Marker

NO.	DATE	REVISION	DWN.	CHKD.	APP.	DATE
1	4/21/93	GENERAL REVISION	TWCE			
2	9/93	GENERAL AS-BUILT	TWCE	FS		11/16/93
3	9/94	CORRECTED M.P. STATIONING	TWCE			

FIELD NOTES	
BOOK	PAGES
R621	22-30
R622	1-3

GENERAL NOTES

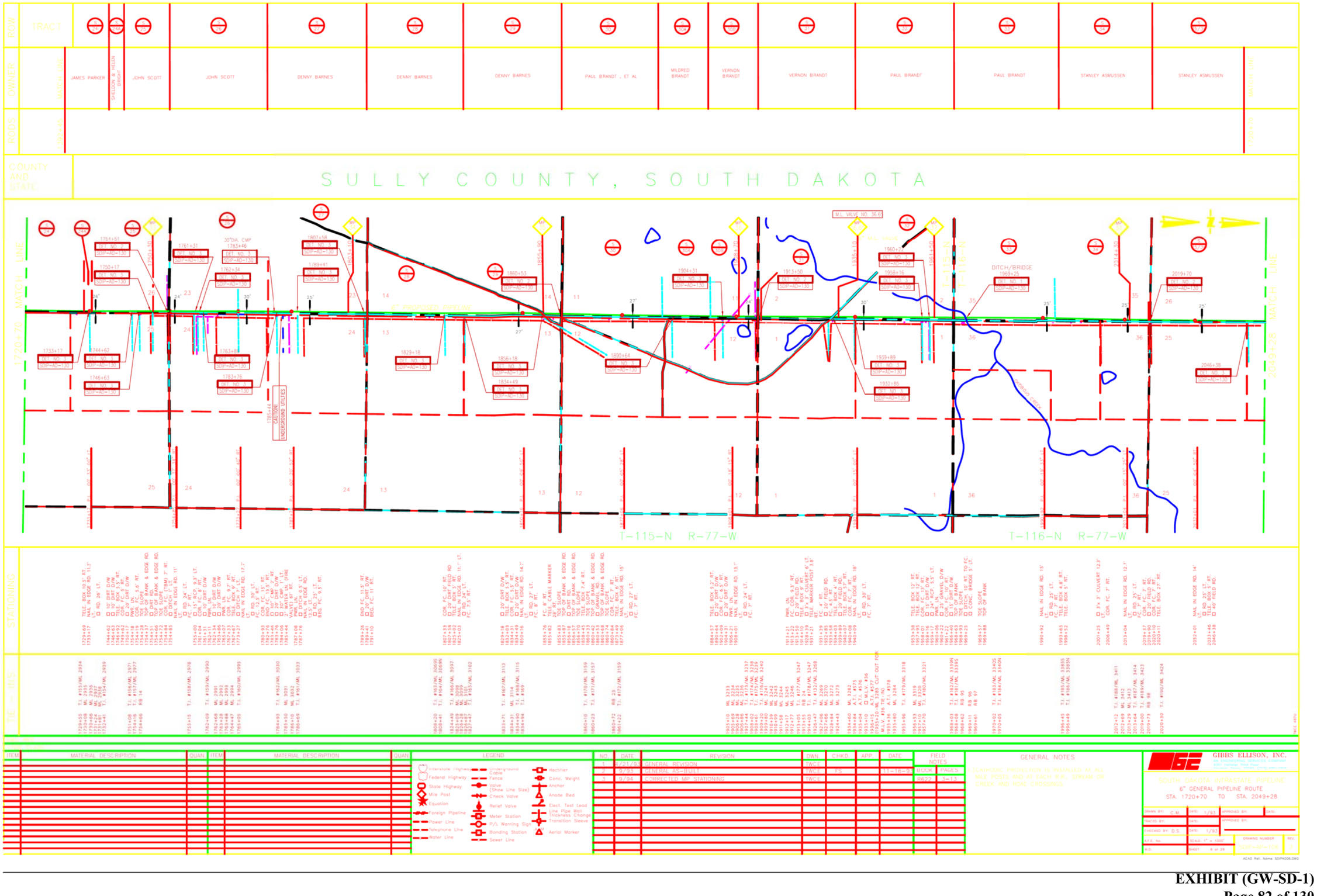
1.) CATHODIC PROTECTION IS INSTALLED AT ALL MILE POSTS AND AT EACH R.R., STREAM OR CREEK AND ROAD CROSSINGS.

GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
5301 Hollister Third Floor
Houston, Texas, 77040, (713) 690-1915

SOUTH DAKOTA INTRASTATE PIPELINE
6" GENERAL PIPELINE ROUTE
STA. 1392+45 TO STA. 1720+70

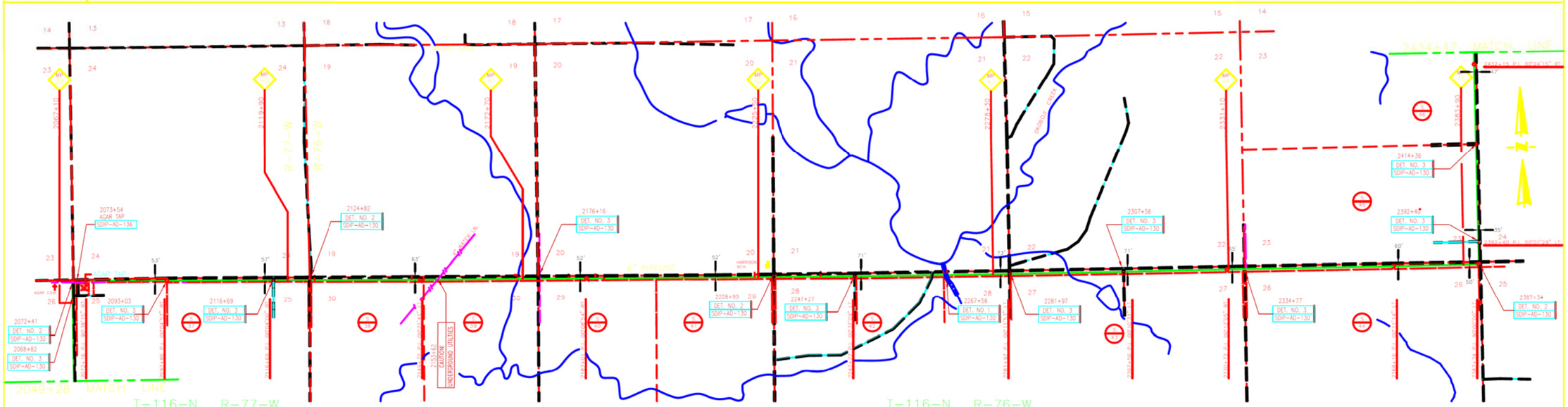
DRAWN BY: M.A.C.	DATE: 12/92	APPROVED BY:	DATE:
TRACED BY:	DATE:	APPROVED BY:	
CHECKED BY: D.S.	DATE: 12/92		
A.F.E. No.	SCALE: 1" = 1000'	DRAWING NUMBER: SDIP-AP-105	REV. 3
W.O.	SHEET 5 of 29		

ACAD Ref. Name SDIPA005.DWG



SULLY COUNTY, SOUTH DAKOTA

ROW	TRACT										
OWNER		DELIA MUNDT	HAROLD MUNDT	RUDOLPH MUNDT	RUDOLPH MUNDT	STANLEY ASMUSSEN	STANLEY ASMUSSEN	STANLEY ASMUSSEN	CALISTA NYSTROM	HOWARD SCHWENN	MONTE ARCHER
RODS											
COUNTY AND STATE	SULLY COUNTY, SOUTH DAKOTA										



STATIONING

2049+28 MATCH LINE; 2049+28 RT. 0° 3' BOX CULVERT; 2064+23 COR. FC. 7' RT.; 2065+67 COR. CEMENT RW; 2068+82 COR. FC. 20.5' RT.; 2071+87 COR. FC. 7' RT.; 2072+16 NAIL IN EDGE RD. 13.2 LT.; 2072+36 RD. 25.1° RT.; 2072+96 CL DIT. GRAVEL RD.; 2073+44 PWR. POLE 8' RT.; 2076+20 CL CMPE 10.3° LT.; 2076+43 NAIL IN EDGE ASPH. RD. 53' LT.; 2092+86 COR. FC. 7' RT.; 2093+03 30' DIRT D/W; 2116+69 NAIL IN EDGE ASPH. RD. 57' LT.; 2124+50 COR. FC. 7' RT.; 2124+54 TOE SLOPE; 2124+68 TOP OF BANK & EDGE RD.; 2124+82 CL GRAVEL RD.; 2125+02 PWR. POLE 18' RT.; 2125+15 COR. FC. 9.4' RT.; 2125+95 36" RCP. 8.3' LT.; 2147+80 15" RCP. 22.5° LT.; 2149+72 G. WIRE 12.3' LT.; 2153+62 NAIL IN EDGE RD. 46' LT.; 2170+90 60" RCP. 30.7' LT.; 2171+28 60" RCP. 30.7' LT.; 2175+84 24" RCP. 23.3° LT.; 2176+16 NAIL IN EDGE RD. 35.7' LT.; 2182+96 36" RCP. 26.5° LT.; 2187+01 NAIL IN EDGE RD. 35.7' LT.; 2188+98 24" RCP. 25° LT.; 2202+61 COR. FC. 6.2' RT.; 2215+97 NAIL IN EDGE RD. 35' LT.; 2224+70 24" RCP. 12.3° LT.; 2228+53 COR. SFC. 6.5' RT.; 2228+82 TOP OF BANK & EDGE RD.; 2229+10 TOE SLOPE; 2229+15 CL DIT. (TBM) 6.5° RT.; 2229+43 24" RCP. 25° LT.; 2239+61 24" RCP. 19° LT.; 2247+27 NAIL IN EDGE RD. 54' LT.; 2247+48 RD. 71° LT. PWR. LN. 6.5° RT.; 2267+21 COR. FC. 8' RT.; 2267+22 TOP OF BANK; 2267+56 CL DITCH; 2267+73 TOE SLOPE; 2267+89 TOP OF BANK; 2281+97 NAIL IN EDGE RD. 56' LT.; 2282+15 RD. 73° LT. FC. & PWR. LN. 7' RT.; 2307+56 NAIL IN EDGE RD. 56.3' LT.; 2307+73 RD. 71° LT. FC. & PWR. LN. 7' RT.; 2330+73 NAIL IN EDGE RD. 48.8' LT.; 2334+27 RD. 65° LT. FC. & PWR. LN. 7' RT.; 2334+52 CL DITCH RD. EAST 21°; 2334+77 30' DIRT RD. FC. 7' RT.; 2335+15 PWR. LN.; 2368+16 NAIL IN EDGE RD. 44.4' LT.; 2387+22 RD. 69° LT. FC. & PWR. LN. 7' RT.; 2387+34 COR. FC. (TBM) 7' RT.; 2387+55 CL DITCH RD. EAST 21°; 2387+70 TOP OF BANK & EDGE RD.; 2387+85 TOE SLOPE; 2388+00 TOP OF BANK & EDGE RD.; 2392+40 NAIL IN EDGE RD. 20.4' LT.; 2414+36 RD. 35° RT. 30' DIRT D/W; 2432+15 NAIL IN EDGE RD. 31.6' RT.; 2434+47 RD. 47° RT. OLD F.C. POST 7° LT.; MATCH LINE

TIE - INS

2072+15 T.I. #192/ML 3313; 2072+17 T.I. #193/ML 3313; 2073+00 RB 26; 2073+15 T.I. #194/ML 3514; 2073+48 A.T.I. #564; 2073+54 AGAR TAP; 2073+60 A.T.I. #565; 2075+92 T.I. #193/ML 3521; 2090+72 T.I. #195/ML 3548; 2091+20 ML 3549; 2092+89 ML 3550; 2093+49 T.I. #196/ML 3551; 2124+29 T.I. #197/ML 3603S; 2124+37 T.I. #198/ML 3603N; 2124+87 RB 26; 2125+36 T.I. #199/ML 3604; 2128+79 ML 3610; 2129+38 ML 3611; 2130+13 ML 3612; 2130+55 ML 3613; 2131+13 ML 3614; 2148+81 ML 3644; 2149+14 ML 3645; 2149+74 ML 3646; 2150+33 ML 3647; 2175+38 T.I. #202/ML 3690; 2175+97 ML 3691; 2176+57 ML 3692; 2177+14 T.I. #203/ML 3693; 2228+93 RB 27; 2228+98 T.I. #203/ML 3781; 2229+51 T.I. #205/ML 3782; 2230+06 ML 3783; 2230+66 ML 3784; 2231+09 T.I. #204/ML 3785; 2266+24 T.I. #207/ML 3845S; 2266+44 T.I. #206/ML 3845N; 2266+93 RB 99; 2267+42 RB 100; 2267+92 RB 101; 2268+38 ML 3846; 2281+04 T.I. #209/ML 3868; 2281+51 ML 3869; 2282+10 ML 3870; 2282+70 T.I. #208/ML 3871; 2333+94 T.I. #210/ML 3958; 2334+52 ML 3959; 2335+10 T.I. #211/ML 3960; 2335+15 T.I. #212/ML 3960; 2387+29 T.I. #215/ML 4048; 2387+35 T.I. #214/ML 4048; 2387+37 T.I. #213; 2387+42 RB 40; 2388+30 T.I. #216/ML 4049; 2388+90 ML 4050; 2389+51 ML 4051; 2390+09 ML 4052; 2390+68 ML 4053; 2391+28 ML 4054; 2391+88 ML 4055; 2392+48 T.I. #217/ML 4056

CLASS I

ITEM	MATERIAL DESCRIPTION	QUAN.	ITEM	MATERIAL DESCRIPTION	QUAN.

LEGEND: Interstate Highway; Federal Highway; State Highway; Mile Post; Equation; Foreign Pipeline; Power Line; Telephone Line; Water Line; Underground Cable; Fence; Valve (Show Line Size); Check Valve; Relief Valve; Meter Station; P/L Warning Sign; Bonding Station; Sewer Line; Hectifier; Conc. Weight Anchor; Anode Bed; Elect. Test Lead Line Pipe Wall Thickness Change Transition Sleeve; Aerial Marker

NO.	DATE	REVISION	DWN.	CHKD.	APP.	DATE
1	1/21/94	GENERAL REVISION	TWCF			
2	6/5/94	GENERAL AS-BUILT	TWCF	ES		11-16-94
3	9/94	CORRECTED MP STATIONING	TWCF			

FIELD NOTES: BOOK | PAGES; 8822 | 13-29

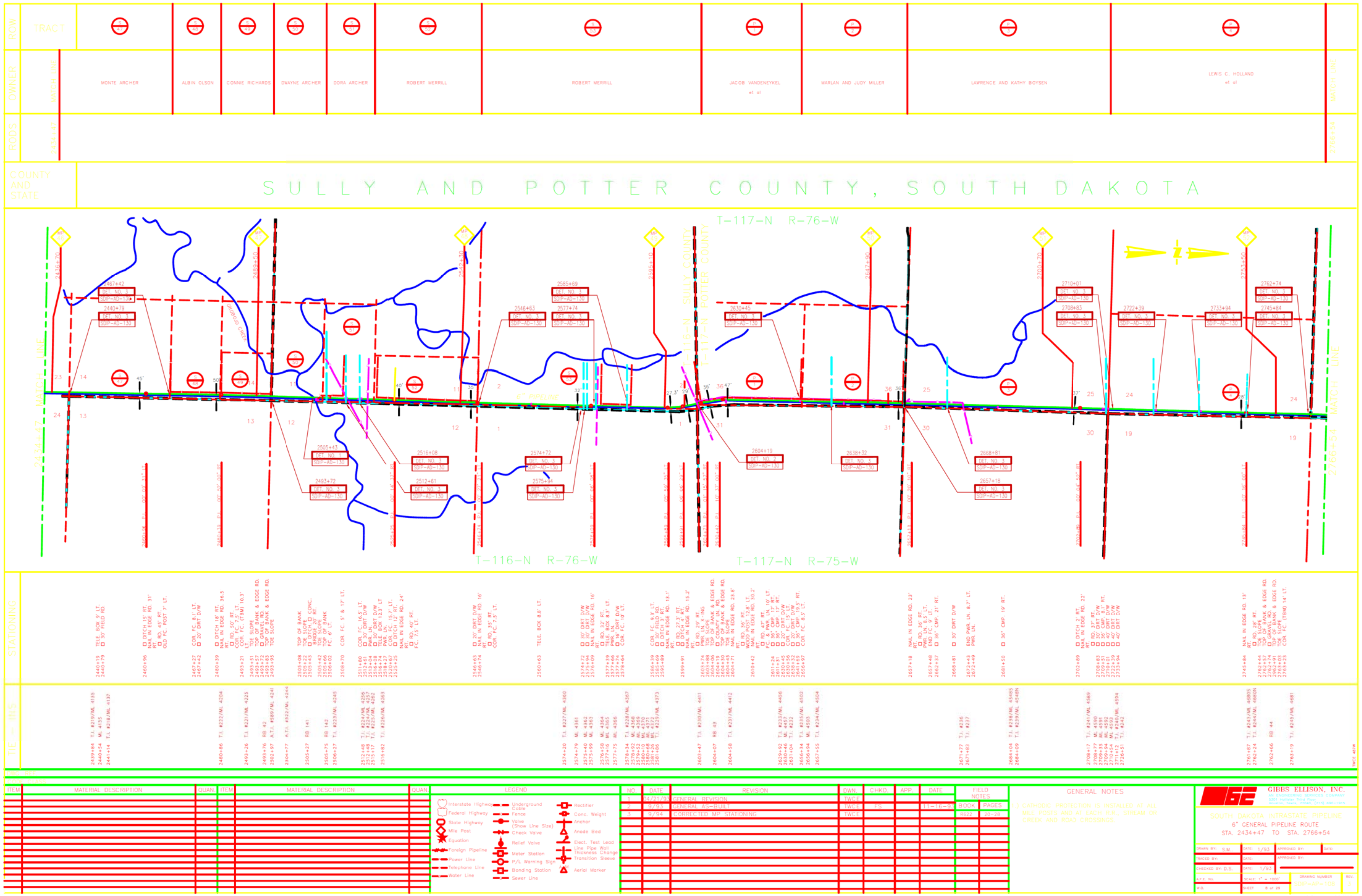
GENERAL NOTES

1.) CATHODIC PROTECTION IS INSTALLED AT ALL MILE POSTS AND AT EACH R.R., STREAM OR CREEK AND ROAD CROSSINGS.

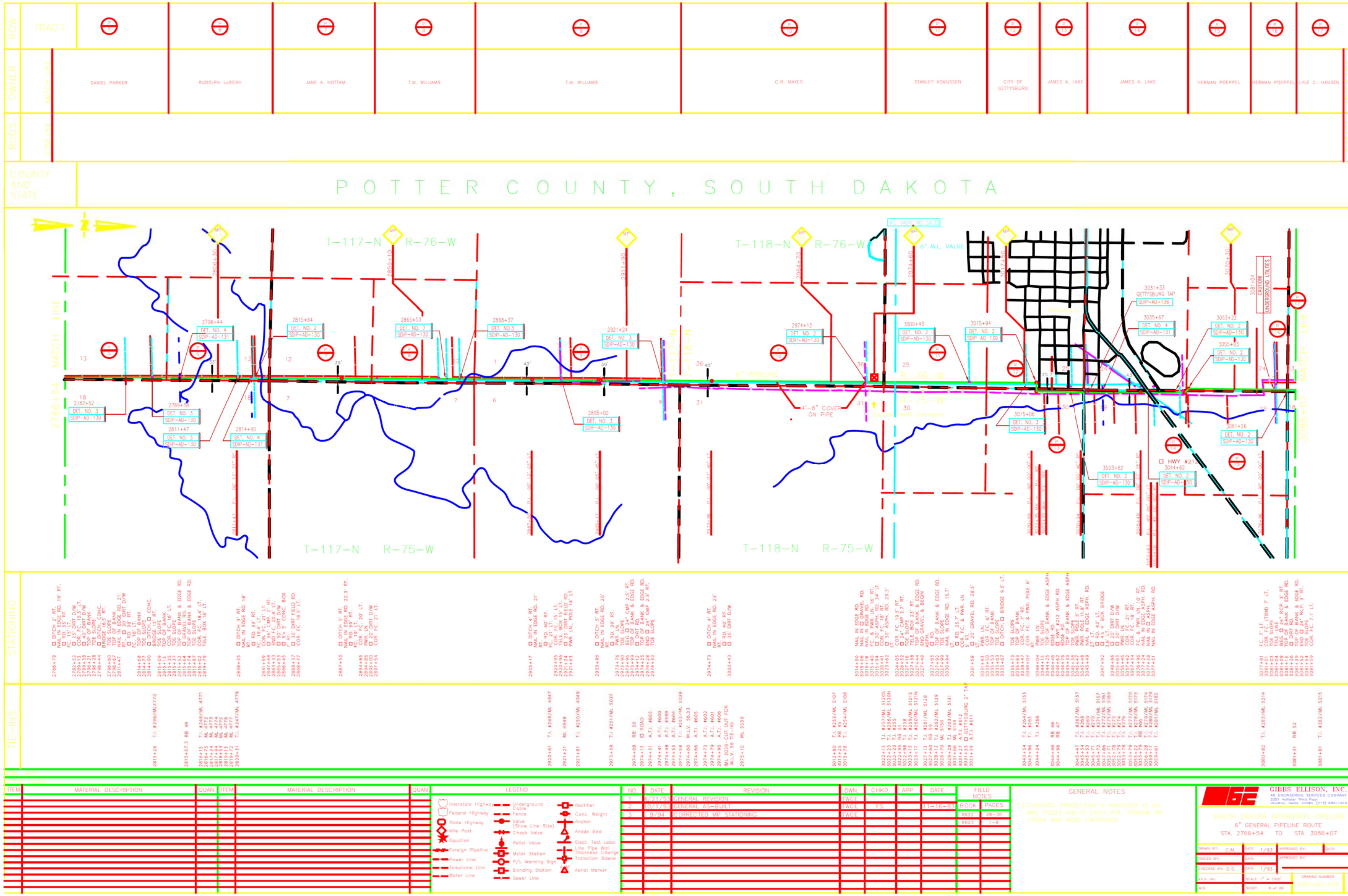
GIBBS ELLISON, INC. AN ENGINEERING SERVICES COMPANY 5301 Hollister Third Floor Houston, Texas 77040 (713) 690-1004

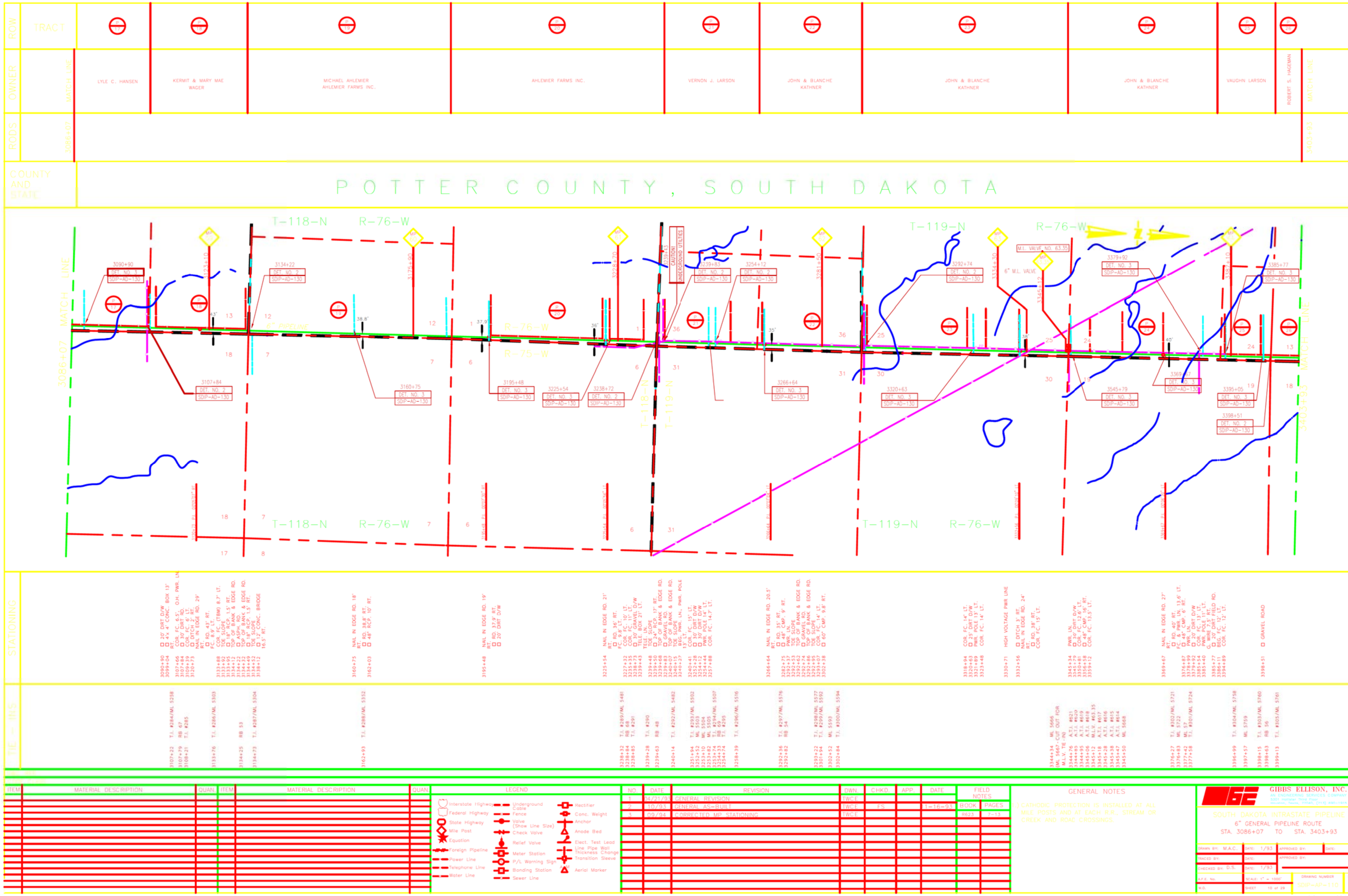
SOUTH DAKOTA INTRASTATE PIPELINE
6" GENERAL PIPELINE ROUTE
STA. 2049+28 TO STA. 2434+47

DRAWN BY: MA DATE: 01/93 APPROVED BY: DATE:
TRACED BY: DATE: APPROVED BY:
CHECKED BY: D.S. DATE: 01/93
F.C. NO.: SCALE: 1" = 1000'
W.O.: SHEET 7 of 29
DRAWING NUMBER SDIP-AD-107 REV. 3



TRACT
MONTE ARCHER
ALBIN OLSON
CONNIE RICHARDS
DWAYNE ARCHER
DORA ARCHER
ROBERT MERRILL
ROBERT MERRILL
JACOB VANDENEYKEL et al
MARLAN AND JUDY MILLER
LAWRENCE AND KATHY BOYSEN
LEWIS C. HOLLAND et al
COUNTY AND STATE
SULLY AND POTTER COUNTY, SOUTH DAKOTA
T-117-N R-76-W
T-116-N R-76-W
T-117-N R-75-W
STATIONING
ITEM
MATERIAL DESCRIPTION
QUAN
LEGEND
REVISION
GENERAL NOTES
GIBBS ELLISON, INC.
6" GENERAL PIPELINE ROUTE
STA. 2434+47 TO STA. 2766+54


DANIEL PARKER
RUDOLPH LeROSH
JANE A. HOTTAM
T.M. WILLIAMS
T.M. WILLIAMS
C.R. MAYES
STANLEY ASMUSSEN
CITY OF GETTYSBURG
JAMES A. LAKE
JAMES A. LAKE
HERMAN POEPPEL
HERMAN POEPPEL
LYLE C. HANSEN
POTTER COUNTY, SOUTH DAKOTA
T-117-N R-76-W
T-118-N R-76-W
T-117-N R-75-W
T-118-N R-75-W
MATCH LINE
GENERAL NOTES
1.) CATHODIC PROTECTION IS INSTALLED AT ALL MILE POSTS AND AT EACH R.R., STREAM OR CREEK AND ROAD CROSSINGS.
GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
SOUTH DAKOTA INTRASTATE PIPELINE
6" GENERAL PIPELINE ROUTE
STA. 2766+54 TO STA. 3086+07
DRAWN BY: C.M. DATE: 1/93
CHECKED BY: D.S. DATE: 1/93
SCALE: 1" = 1000'
SHEET 9 of 29
DRAWING NUMBER SDIP-AP-109
REV. 3
ACAD Ref. Name SDIPA009.DWG



POTTER COUNTY, SOUTH DAKOTA
T-118-N R-76-W
T-119-N R-76-W
LYLE C. HANSEN
KERMIT & MARY MAE WAGER
MICHAEL AHLEMIER AHLEMIER FARMS INC.
AHLEMIER FARMS INC.
VERNON J. LARSON
JOHN & BLANCHE KATHNER
VAUGHN LARSON
ROBERT S. HAGEMAN
GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
SOUTH DAKOTA INTRASTATE PIPELINE
6" GENERAL PIPELINE ROUTE
STA. 3086+07 TO STA. 3403+93
DRAWN BY: M.A.C. DATE: 1/93
CHECKED BY: D.S. DATE: 1/93
SCALE: 1" = 1000'
SHEET 10 of 29
DRAWING NUMBER SDIP-AP-110
REV. 3
ACAD Ref. Name SDIPA010.DWG

ROW

TRACT

OWNER

MATCH LINE

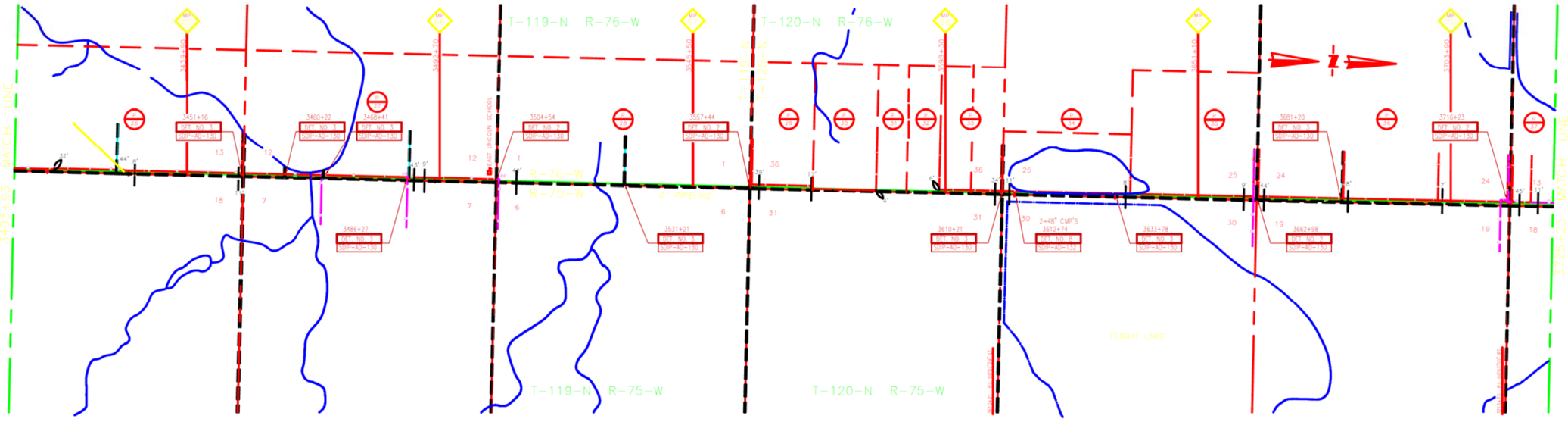
ROBERT S. HAGEMAN | RAYMOND E. LARSON | FRANCIS GRIFFITH | FRANCIS J. GRIFFITH | FRANCIS DeROUCHEY | JAMES KARST | ROBERT HAGEMAN | DARRELL HARER | DARRELL HARER | MIKE HEPPER | RONALD V. LARSON, et al | MERRILL B. HINCKLEY, et al

MATCH LINE

RODS

COUNTY AND STATE

POTTER COUNTY, SOUTH DAKOTA



STATIONING

3403+93 MATCH LINE
3410+80 48" CMP, 3' RT.
3412+15 COR. FC. 11' LT.
COR. FC. 32' LT.
3425+18 NAIL IN EDGE RD. 32' RT.
RD. 44° RT.
PWR. LN. 8.4' LT.
3427+74 46° CMP. 18' RT.
3451+25 COR. FC.11' LT.
3451+60 NAIL IN FIELD RD.
3451+95 BIG. FC.9' LT.
3460+22 30' DIRT D/W
3465+76 2.5'x 5' CONC. BOX
21' RT.
3468+15 PWR. LN.
3468+41 30' DIRT D/W
3485+93 PWR. LN.
3486+27 NAIL IN EDGE RD. 31' RT.
RD. 43° PT. 9' LT.
FC. 5. PWR. LN. 9' LT.
3491+73 48° CMP. 17' RT.
3504+00 END FC. 11' LT.
3504+27 TOE SLOPE
3504+40 TOP OF BANK & EDGE RD.
3504+65 TOE SLOPE
3505+03 PWR. LN., POLE 13' LT
3505+38 G. WIRE
3509+72 NAIL IN EDGE RD. 29.5' RT.
RD. 42° RT.
3524+47 2.5'x 5' CONC. BOX'S
W. RT. x 5' LONG
3531+21 30' DIRT D/W
3556+98 TOE SLOPE
3557+30 TOP OF BANK & EDGE RD.
3557+44 NAIL IN EDGE RD. 28' RT.
3557+52 TOP OF BANK & EDGE RD.
3557+72 TOE SLOPE
3557+90 CORR.FC. (TBM) 12' LT.
3570+38 FC. 5' RT.
3570+91 FC. 4.3' RT.
3583+99 COR. FC. 3.3' RT.
3597+04 COR. FC. 6' LT.
3610+03 COR. FC. 10' LT.
3610+21 NAIL IN EDGE RD. 21' RT.
RD. 34° RT.
3612+74 FC. 5' LT.
48° CMP. 2' LT.
3633+78 48° CMP. 0.2' LT.
3636+88 COR. FC. 8' LT.
3652+76 COR. FC. 6.7' LT. PWR. LN.
3653+28 NAIL IN EDGE RD. 28' RT.
3653+62 RD. 44° RT.
COR. FC. 9' LT.
3663+62
3681+20 20' DIRT D/W
3681+30 COR. FC. 8' LT.
3701+21 COR. FC. 6.5' LT.
3714+30 TELE LN.
3715+85 COR. FC. 7' LT.
3715+99 TOE SLOPE
3716+23 TOP OF BANK & EDGE RD.
3716+43 NAIL IN EDGE RD. 28' RT.
3717+35 TOE SLOPE
3726+83 FC. 11' LT.
3725+60 TOE SLOPE
3725+23 COR. FC. 9' LT.
MATCH LINE

TIE-INS

T.I. #306/ML 5850 3450+62
ML 5851 3451+20
ML 5852 3451+78
T.I. #307/ML 5853 3452+36
T.I. #308/ML 5943 3504+06
R.B. 58 3504+55
T.I. #310 3504+96
ML 5945 3505+55
T.I. #309/ML 5946 3506+05
T.I. #311/ML 6035 3557+04
RB 60 3557+54
T.I. #312/ML 6036 3558+05
T.I. #313/ML 6121 3607+22
T.I. #314/ML 61325 3607+80
T.I. #315/ML 6132N 3609+85
T/T #317/ML 62185 3652+80
T.I. #316/ML 6218N 3653+05
RB 55 3653+56
T.I. #318/ML 6219
T.I. #322/ML 6306 3714+20
T.I. #321/ML 6309 3715+93
RB 61 3716+39
T.I. #319/ML 6310 3716+86
T.I. #320/ML 6311 3717+33
TMCE 4872

ITEM	MATERIAL DESCRIPTION	QUAN.	ITEM	MATERIAL DESCRIPTION	QUAN.

LEGEND

- Interstate Highway
- Federal Highway
- State Highway
- Mile Post
- Equation
- Foreign Pipeline
- Power Line
- Telephone Line
- Water Line
- Underground Cable
- Fence
- Valve (Show Line Size)
- Check Valve
- Relief Valve
- Meter Station
- P/L Warning Sign
- Bonding Station
- Sewer Line
- Rectifier
- Conc. Weight
- Anchor
- Anode Bed
- Elect. Test Lead
- Line Pipe Wall Thickness Change
- Transition Sleeve
- Aerial Marker

NO.	DATE	REVISION	DWN.	CHKD.	APP.	DATE
1	06/21/94	GENERAL REVISION	TWCF			
2	9/94	GENERAL AS-BUILT	TWCF	FS		11-15-94
3	9/94	CORRECTED MP STATIONING	TWCF			

FIELD NOTES

BOOK	PAGES
6-24	13-18

GENERAL NOTES

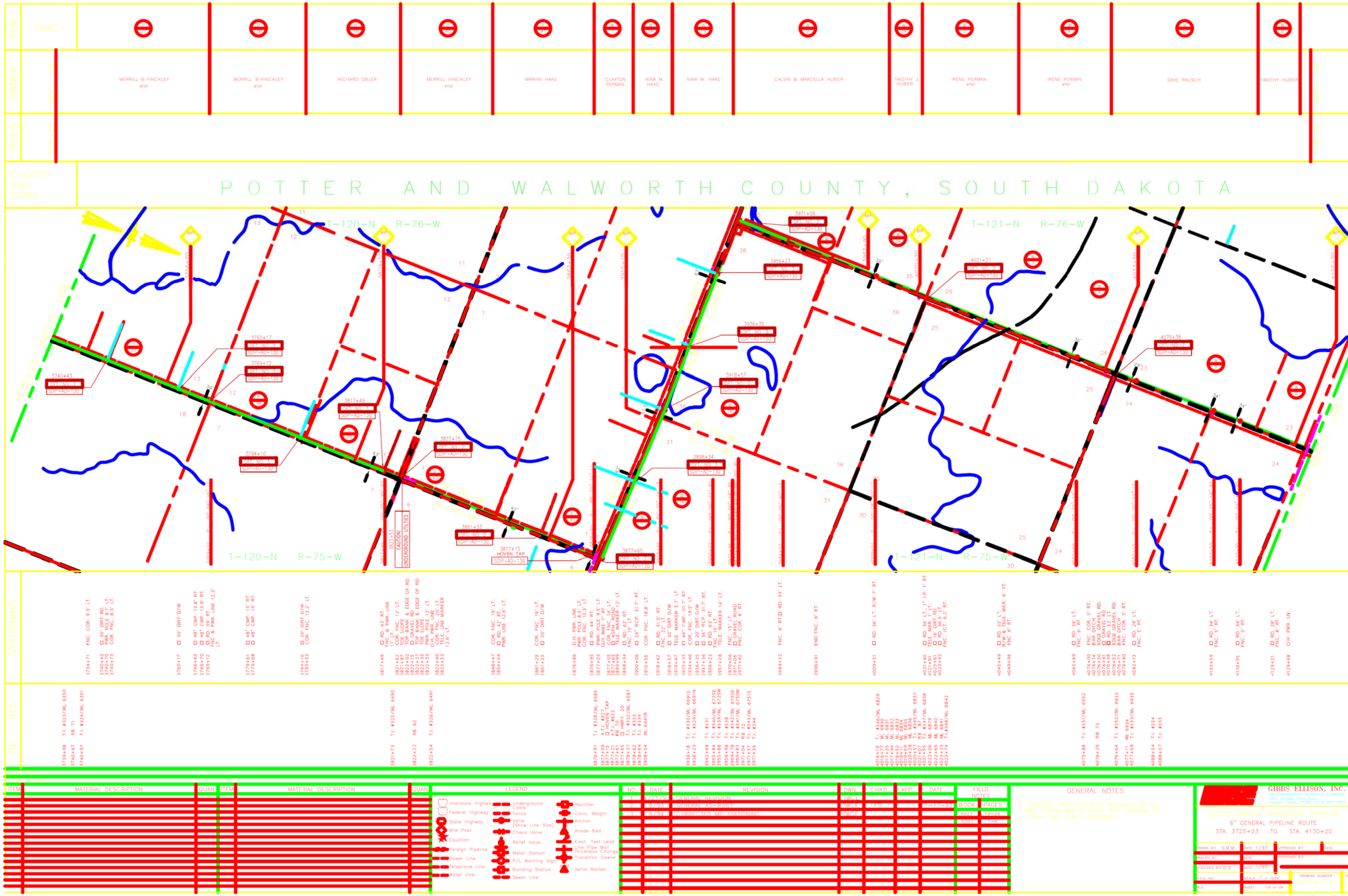
(1) CATHODIC PROTECTION IS INSTALLED AT ALL MILE POSTS AND AT EACH R.R., STREAM OR CREEK AND ROAD CROSSINGS.

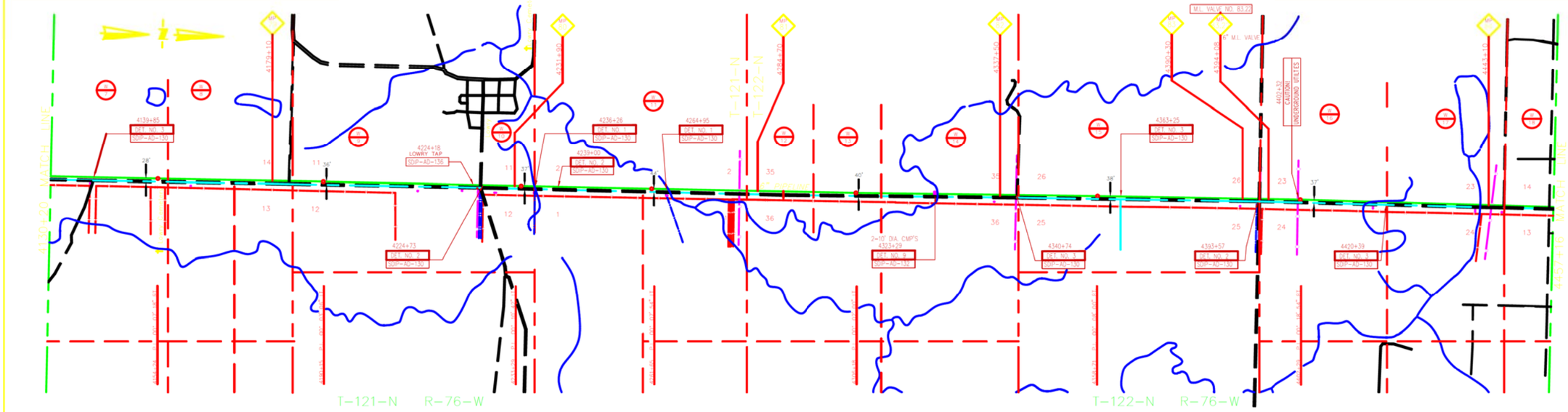
GIBBS ELLISON, INC.
PO Box 5503 (57709-5503)
5301 Mahan Drive
Rapid City, SD

SOUTH DAKOTA INTRASTATE PIPELINE
6" GENERAL PIPELINE ROUTE
STA. 3403+93 TO STA. 3725+23

DRAWN BY: MA DATE: 1/93 APPROVED BY: REV:
TRACED BY: DATE: APPROVED BY:
CHECKED BY: D.S. DATE: 1/93
A.F.E. No. SCALE: 1" = 1000' DRAWING NUMBER SDIPA011 REV:
W.O. SHEET: 11 of 29

ACAD Ref. Name SDIPA011.DWG


TRACT
OWNER
ROADS
COUNTY AND STATE
MERRILL B.HINCKLEY etal
RICHARD OBLER
MERRILL HINCKLEY etal
MARVIN HAAG
CLAYTON PERMAN
NINA M. HAAG
CALVIN & MARCELLA HUBER
TIMOTHY J. HUBER
IRENE PERMAN etal
DAVE RAUSCH
TIMOTHY HUBER
POTTER AND WALWORTH COUNTY, SOUTH DAKOTA
T-120-N R-76-W
T-121-N R-76-W
T-120-N R-75-W
T-121-N R-75-W
HOVEN TAP
CAUTION UNDERGROUND UTILITIES
STATIONING
MATERIAL DESCRIPTION
LEGEND
REVISION
GENERAL NOTES
GIBBS ELLISON, INC.
6" GENERAL PIPELINE ROUTE
STA. 3725+23 TO STA. 4130+20



ROW TRACT	W 7	W 8	W 9	W 10	W 11	W 12	W 13	W 14	W 15	W 16	W 17	W 18
OWNER	CALVIN H. HUBER	DENNIS & AUDREY BEITELSPACHER	DENNIS & AUDREY BEITELSPACHER	CITY OF LOWRY	LARRY G. & BEVERLY J. ANDERSON	LARRY G. & BEVERLY J. ANDERSON	LYLE V. PERMAN & GRANT J. PERMAN	LYLE V. PERMAN	RAYMOND RUSZA (STATE SCHOOL LAND)	WALTER & WALBURGA ZAMBO	RODNEY RUSZA	RODNEY RUSZA (STATE SCHOOL LAND)
RODS												

MATCH LINE 4130+20 — MATCH LINE 4457+16

COUNTY AND STATE: WALWORTH COUNTY, SOUTH DAKOTA

STATIONING

4139+46 FNC. COR. 3.2' RT.
4139+55 TELE. MKR. 1.5' RT.
4139+85 ☐ 20' GRAVEL DR.
4140+86 ☐ RD. 32' LT.
FNC. COR. 4.4' RT.

4152+64 FNC. JCT. 5' RT.
BEG. CEMETARY
4154+24 ☐ RD. 28' LT.
FNC. 5' RT.
4155+79 FNC. JCT. 5' RT.
END CEMETARY
4158+50 12" TREE 3.9' RT.
4161+35 TELE. MKR. 5.5' RT.

4190+15 ☐ RD. 36' LT.
FNC. 5.6' RT.

4205+92 ☐ RD. 37' LT.
FNC. COR. JCT. 5' RT.
4210+80 TELE. MKR. 2' RT.
4220+47 ☐ 9'w. CONC.
BRIDGE 27.5' LT.
4220+49 U.S. SURVEY BENCH
MARK 27.8' LT.
4223+91 O.H. PWR. LN., POLE 3' LT.
4224+29 BAR DITCH
4224+46 EDGE GRAVEL RD.
4224+60 ☐ RD. 41' LT.
4224+73 EDGE GRAVEL RD.
4224+90 BAR DITCH
4225+03 FNC. COR. 5.7' RT.
4227+45 BEG. 18" CMP.
4227+85 END 18" CMP.

4233+29 ☐ RD. 37' LT.
FNC. 5' RT.
4235+79 BEG. RIP. RAP.
4236+04 BEG. CONC. BRIDGE 4' LT.
4236+26 ☐ CREEK 2' DEEP
4236+50 END CONC. BRIDGE 5' LT.
4236+72 END RIP. RAP.
4239+00 ☐ GRAVEL ROAD

4261+65 ☐ RD. 44' LT.
FNC. 5' RT.
4264+52 BEG. RIP. RAP.
4264+83 BEG. CONC. CLV. 6.5' LT.
4264+95 ☐ DRY CREEK BED
4265+10 END CONC. CLV. 6' LT.
4265+33 END RIP. RAP.

4278+44 FNC. 4.5' RT.
4278+86 EDGE PVT. DR.
4279+13 EDGE PVT. DR.
☐ RD. 41' LT.
4279+53 FNC. JCT. 4.6' RT
4280+66 O.H. PWR. LN.

4287+56 ☐ RD. 41' LT.
FNC. JCT. 4.7' RT.

4306+18 ☐ RD. 40' LT.
FNC. 5.2' RT.

4314+79 FNC. COR. 5'& 9.2' RT.

4323+29 ☐ 10' DIA. CMP.
END 4' RT.
4323+54 ☐ 10' DIA. CMP.
END 4.6' RT.

4336+24 ☐ RD. 42' LT.
TELE. PED. 5.6' RT.

4340+74 ☐ 12' PVT. GRAVEL DR.
4341+10 O.H. PWR. LN.
4343+67 END FNC. 6' RT.

4358+71 ☐ RD. 38' LT.

4363+25 ☐ 8' FIELD RD.

4389+68 ☐ RD. 40' LT.
TELE. PED. 6.5' RT.

4393+31 BAR DITCH

4393+57 ☐ 20' GRAVEL RD.
☐ RD. 38' LT.
4393+88 BAR DITCH
4393+97 O.H. PWR. LN.
4394+02 FNC. COR. 10' RT.

4402+32 BURIED CABLE
(DEPTH UNKNOWN)
4402+29 ☐ RD. 37' LT.
FNC. 14' RT.
4418+70 ☐ 36" CMP. 3' LT.
FNC.12' RT.
4419+99 ☐ RD. 37' LT.
CLUMP 5" TREES 4' RT.
FNC. 13' RT.
4420+39 ☐ 16' FIELD RD.
4440+92 ☐ 5' DIA. CMP. (2' COV.)
4442+24 FNC. COR. 14' RT.
4444+32 O.H. PWR. LN.
4446+71 ☐ RD. 43' LT.
TELE. PED. 7' RT.

TIE - INS

4181+73 T.I. #356/ML 7114
4182+05 T.I. #357/ML 7116
4182+31 ML 7115

4224+11 T.I. #358/ML 7188
4224+12 A.T.I. #628
4224+18 ☐ LOWRY TAP
4224+24 A.T.I. #627
4224+60 ☐ GRAVEL RD.
4224+68 RB #74
4225+07 T.I. #361/ML 7189

4229+38 ML 7196
4224+41 A.T.I. #626
4229+95 ML 7197

4235+69 T.I. #335/ML 7208
4236+21 T.I. #336/ML 7209
4236+70 T.I. #337/ML 7210
4237+20 T.I. #360
4237+76 T.I. #359/ML 7211
4238+26 RB 57
4238+64 T.I. #362/ML 7212

4264+22 T.I. #363
4264+71 T.I. #350
4265+21 T.I. #349
4265+89 T.I. #364/ML 7209
4266+15 T.I. #365

4323+31 T.I. #369
4323+35 T.I. #368
4335+44 T.I. #370
4335+52 T.I. #371

4340+38 T.I. #367/ML 7390
4341+02 ML 7391
4341+29 T.I. #373/ML 7392

4393+26 T.I. #372/ML 7482
4393+49 RB 75
4393+57 ☐ ROAD
4393+81 A.T.I. #635
(4394+02=T.I. #373/ML 7483 - CUT OUT FOR TIE - IN)
4394+02 A.T.I. #632

4394+08 M.L.V. #83.22
4394+14 A.T.I. #631
4394+25 A.T.I. #630
4394+30 A.T.I. #629
4394+39 A.T.I. #634
4394+43 A.T.I. #633
4394+60 ML 7484

4439+98 T.I. #375/ML 7564
4440+55 ML 7565
4441+20 T.I. #376/ML 7566
4445+58 T.I. #377/ML 7574
4446+16 ML 7575
4446+34 T.I. #374/ML 7576

ITEM	MATERIAL DESCRIPTION	QUAN.	ITEM	MATERIAL DESCRIPTION	QUAN.

LEGEND

Interstate Highway
Federal Highway
State Highway
Mile Post
Equation
Foreign Pipeline
Power Line
Telephone Line
Water Line

Underground Cable
Fence
Valve (Show Line Size)
Check Valve
Relief Valve
Meter Station
R/A Warning Sign
Bonding Station
Sewer Line

Rectifier
Conc. Weight
Anchor
Anode Bed
Elect. Test Lead
Line Pipe Wall Thickness Change
Transition Sleeve
Aerial Marker

NO.	DATE	REVISION	DWN.	CHKD.	APP.	DATE
1	4/21/93	GENERAL REVISION	TWCE			
2	9/93	GENERAL AS-BUILT	TWCE	FS		11-17-93
3	9/94	CORRECTED MP STATIONING	TWCE			

FIELD NOTES	
BOOK	PAGES
S2-B6	6-18

GENERAL NOTES

1.)CATHODIC PROTECTION IS INSTALLED AT ALL MILE POSTS AND AT EACH R.R., STREAM OR CREEK AND ROAD CROSSINGS.

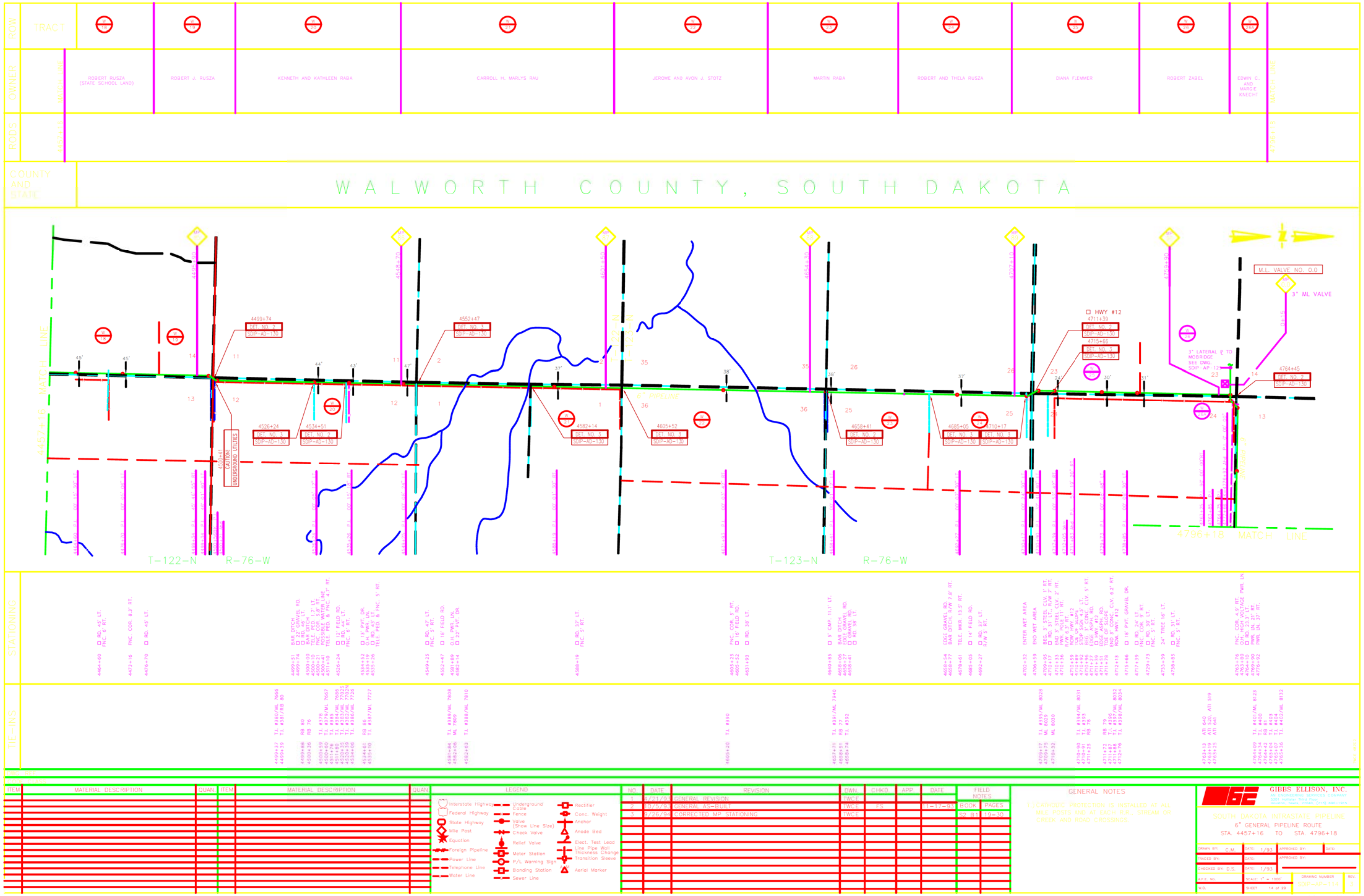
GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
5301 Hollister Third Floor
Houston, Texas, 77040, (713) 690-1815

SOUTH DAKOTA INTRASTATE PIPELINE
6" GENERAL PIPELINE ROUTE
STA. 4130+20 TO STA. 4457+16

DRAWN BY: S.M.M.	DATE: 1/93	APPROVED BY:	DATE:
TRACED BY:	DATE:	APPROVED BY:	
CHECKED BY: D.S.	DATE: 1/93		
A.F.E. No.	SCALE: 1" = 1000'	DRAWING NUMBER	REV.
W.O.	SHEET 13 of 29	SDIP-AP-113	3

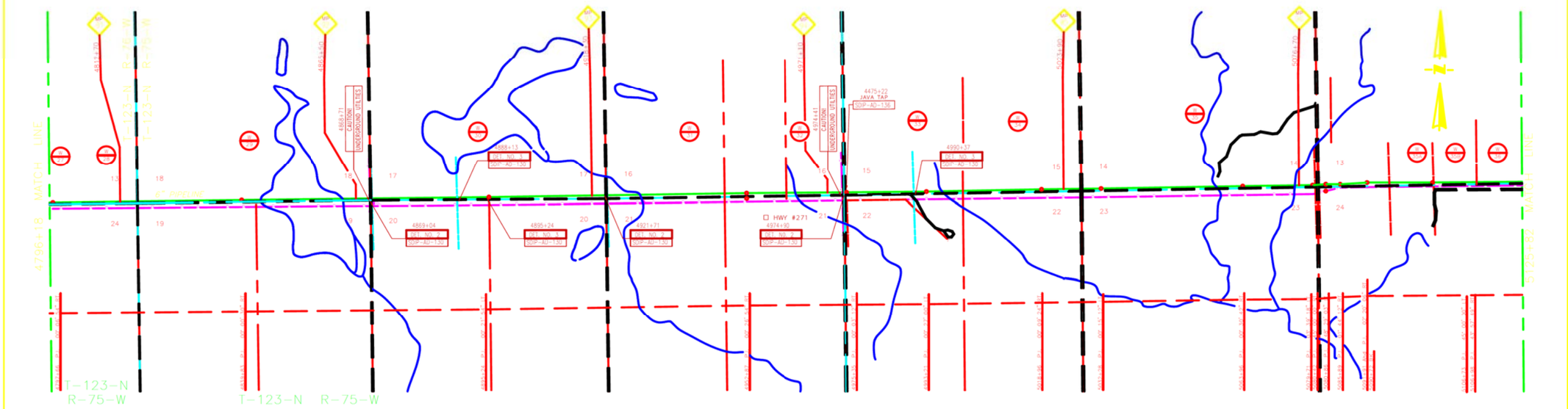
ACAD Ref. Name SDIPA013.DWG

EXHIBIT (GW-SD-1)


WALWORTH COUNTY, SOUTH DAKOTA
ROBERT RUSZA (STATE SCHOOL LAND)
ROBERT J. RUSZA
KENNETH AND KATHLEEN RABA
CARROLL H. MARLYS RAU
JEROME AND AVON J. STOTZ
MARTIN RABA
ROBERT AND THELA RUSZA
DIANA FLEMMER
ROBERT ZABEL
EDWIN C. AND MARGIE KNECHT
T-122-N R-76-W
T-123-N R-76-W
M.L. VALVE NO. 0.0
3" ML VALVE
HWY #12
4796+18 MATCH LINE
GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
SOUTH DAKOTA INTRASTATE PIPELINE
6" GENERAL PIPELINE ROUTE
STA. 4457+16 TO STA. 4796+18
DRAWN BY: C.M. DATE: 1/93
CHECKED BY: D.S. DATE: 1/93
SCALE: 1" = 1000'
SHEET 14 of 29
DRAWING NUMBER SDIP-AP-114
REV. 3
ACAD Ref. Name SDIPA014.DWG

ROW	OWNER	ROBERT ZABEL	LORRAINE FIECHNER	JACOB A. & ALMA M. AND GENE DIEDTRICH	DONALD E. RABA	HENRY SEYER JR.	VIOLET AMAN	OSCAR CARLSON	HENRY VANDER MARTIN, JR.	ROBERT STANGL	RICHARD D. OSTERDAY	ROSS J. BIEBER	ORVILLE A. STANGL

COUNTY AND STATE: WALWORTH COUNTY, SOUTH DAKOTA



STATIONING

4797+66 PWR. LN. 37' RT.	4839+83 PWR. LN. 37' RT.	4868+71 BURIED TELE. CABLE (DEPTH UNKNOWN)	4868+78 BAR DITCH	4868+97 EDGE RD.	4869+07 GRAVEL RD. RD. 23 LT.	4869+17 EDGE RD.	4869+36 BAR DITCH	4869+43 PWR. POLE 10.7' RT. GUY WIRE 1.7' LT.	4888+13 FIELD RD. RD. 21.4' LT.	4895+24 END GRAVEL RD. PWR. LN. 45' RT.	4921+71 20' GRAVEL RD.	4929+77 WINDMILL 34.5' RT.	4952+87 PWR. LN. 61' RT.
4974+41 BURIED TELE CABLE	4974+56 BAR DITCH	4974+79 EDGE PAVEMENT	4974+90 HWY. #271	4975+01 EDGE PAVEMENT	4975+21 BAR DITCH 4975+38 FNC. COR. 5' RT.	4988+52 END FNC. 1' RT.	4990+37 END RD. 2" LT.	4991+18 BEG.SMALL TREES	4993+21 END SMALL TREES	5018+96 PWR. LN. 42' RT.	5032+28 PWR. LN. 40' RT.	5039+21 PWR. LN. 35' RT. 5080+33 FNC. 5080+59 FNC.	5083+33 O.H. HIGH VOLTAGE PWR. LN.
5085+89 PWR. LN. 35' LT.	5091+71 PWR. LN. 15' LT.	5096+91 FNC.	5106+56 O.H. PWR. LN. 26' LT.	5106+81 FNC.	5107+10 BEG. 14' GRAVEL DR. 22' RT.								

PIPELINE CROSSING

4816+17 T.I. #407/ML 8221	4816+76 T.I. #406/ML 8222W	4816+81 T.I. #408/ML 8222E	4844+55 T.I. #405/ML 8270	4860+21 ML 8297	4860+79 ML 8298	4861+96 ML 8300	4862+35 T.I. #410/ML 8301	4868+60 T.I. #409/ML 8313	4869+06 RIB 82	4869+63 T.I. #411/ML 8314	4921+22 T.I. #412/ML 8403	4922+11 RIB 83 T.I. #413/ML 8404	4926+19 ML 8411
4926+77 ML 8412	4927+35 ML 8413	4927+94 ML 8414	4928+52 ML 8415	4929+10 ML 8416	4929+69 ML 8417	4930+28 ML 8418	4930+61 T.I. #414/ML 8419	4974+21 T.I. #415/ML 8456W	4974+47 T.I. #416/ML 8456E	4974+80 HWY. #271	4974+91 RIB #84	4975+16 T.I. #442	4975+32 A.T.I. #641
4975+28 T.I. #417/ML 8495	4975+40 T.I. #418/ML 8521	4990+36 T.I. #419/ML 8522	4991+26 T.I. #420/ML 8566	5016+39 T.I. #421/ML 8595W	5033+28 T.I. #422/ML 8595E	5033+32 T.I. #424/ML 8636	5051+19 T.I. #425/ML 8627	5051+74 T.I. #423/ML 8632	5054+65 T.I. #426/ML 8655	5067+30 T.I. #427/ML 8680	5081+17 T.I. #429/ML 8727	5106+73 T.I. #430/ML 8727	5106+85 T.I. #431/ML 8759
5125+36 T.I. #432/ML 8759	5125+64 T.I. #417/ML 8759												

ITEM	MATERIAL DESCRIPTION	QUAN.	ITEM	MATERIAL DESCRIPTION	QUAN.

LEGEND

- Interstate Highway
- Federal Highway
- State Highway
- Mile Post
- Equation
- Foreign Pipeline
- Power Line
- Telephone Line
- Water Line
- Underground Cable
- Fence
- Valve (Show Line Size)
- Check Valve
- Relief Valve
- Meter Station
- P/L Warning Sign
- Bonding Station
- Sewer Line
- Rectifier
- Conc. Weight
- Anchor
- Anode Bed
- Elect. Test Lead
- Line Pipe Wall Thickness Change
- Transition Sleeve
- Aerial Marker

NO.	DATE	REVISION	DWN.	CHKD.	APP.	DATE
1	5/21/93	GENERAL REVISION	TWCE			
2	10/4/93	GENERAL AS-BUILT	TWCE	FS		11-17-93
3	9/26/94	CORRECTED MP STATIONING	TWCE			

FIELD NOTES: BOOK 52, BUT 30-37; PAGES

GENERAL NOTES:

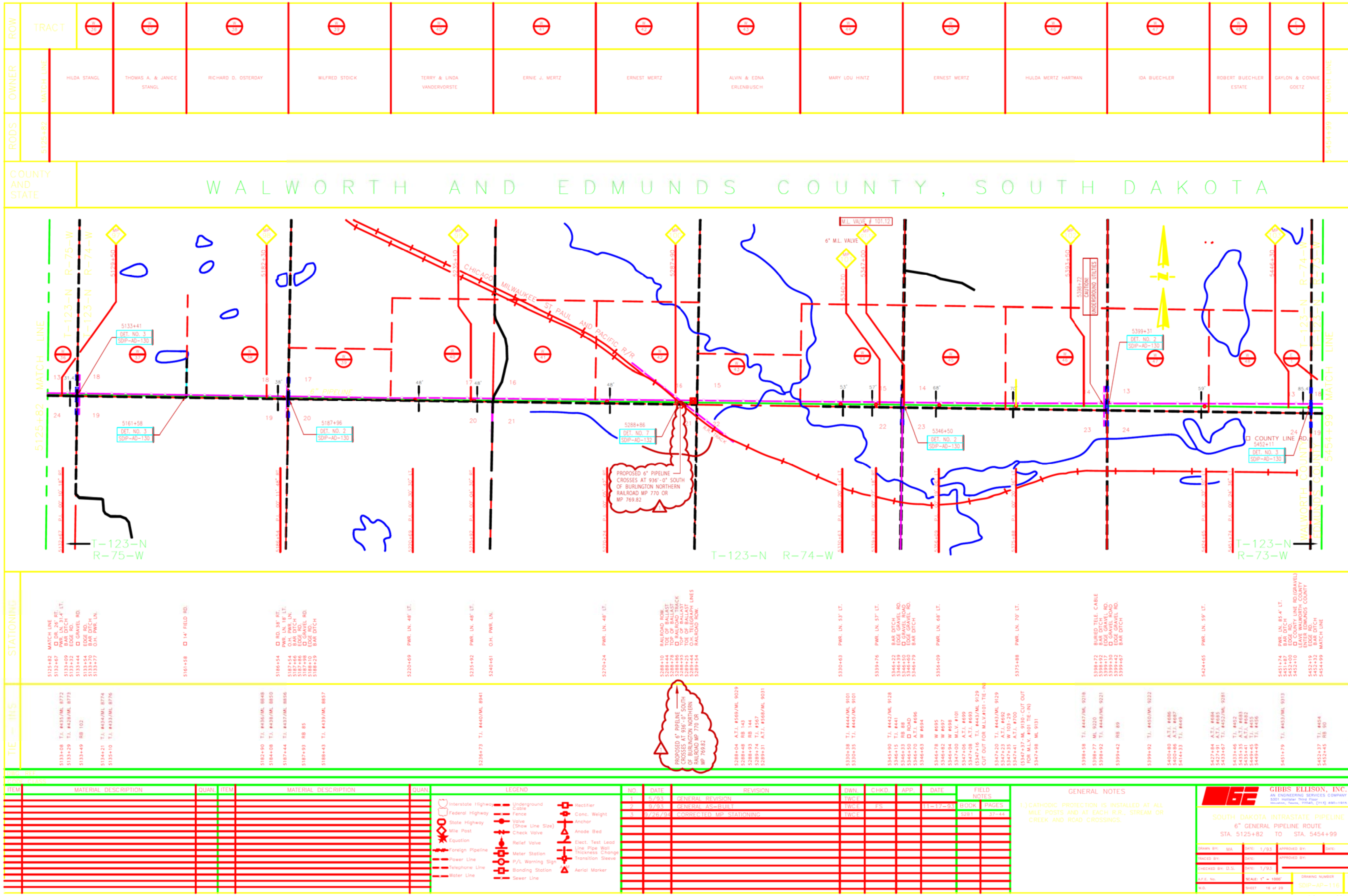
1) CATHODIC PROTECTION IS INSTALLED AT ALL MLV, POSTS AND AT EACH R.R., STREAM, DRY CREEK AND ROAD CROSSINGS.

GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
5201 Harbour View Blvd.
Suite 140
Norfolk, Virginia 23502 (757) 466-1915

SOUTH DAKOTA INTRASTATE PIPELINE
6" GENERAL PIPELINE ROUTE
STA. 4796+18 TO STA. 5125+82

DRAWN BY: C.M.	DATE: 1/93	APPROVED BY:	DATE:
TRACED BY:	DATE:	APPROVED BY:	
CHECKED BY: D.S.	DATE: 1/93		
A.F.E. No.:	SCALE: 1" = 1000'	DRAWING NUMBER: SDIPAP-115	REV. 3
W.O.	SHEET 15 of 29		

ACAD Ref. Name SDIPA015.DWG



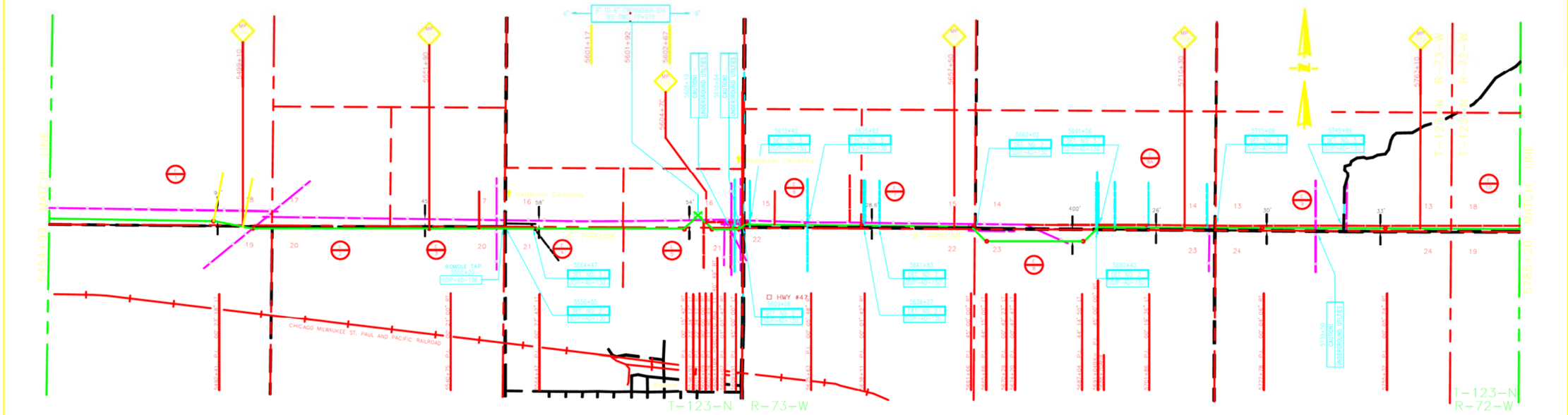
WALWORTH AND EDMUNDS COUNTY, SOUTH DAKOTA
HILDA STANGL
THOMAS A. & JANICE STANGL
RICHARD D. OSTERDAY
WILFRED STOICK
TERRY & LINDA VANDERVORSTE
ERNIE J. MERTZ
ERNEST MERTZ
ALVIN & EDNA ERLENBUSCH
MARY LOU HINTZ
ERNEST MERTZ
HULDA MERTZ HARTMAN
IDA BUECHLER
ROBERT BUECHLER ESTATE
GAYLON & CONNIE GOETZ
CHICAGO MILWAUKEE ST. PAUL AND PACIFIC R/R
PROPOSED 6" PIPELINE CROSSES AT 936'-0" SOUTH OF BURLINGTON NORTHERN RAILROAD MP 770 OR MP 769.82
T-123-N R-75-W
T-123-N R-74-W
T-123-N R-73-W
COUNTY LINE RD.
GENERAL NOTES
GIBBS ELLISON, INC.
6" GENERAL PIPELINE ROUTE
STA. 5125+82 TO STA. 5454+99

ROW | TRACT | ⊖ | ⊖ | ⊖ | ⊖ | ⊖ | ⊖ | ⊖ | ⊖ | ⊖ | ⊖ | ⊖ | ⊖

OWNER | MATCH LINE | GAYON & CONNIE GOETZ | LAURA HAALAND & MRS. ROBERT NICKISH | RITA HUBER | LYLE AND RITA HUBER | QUENTIN WALZ | RAYFIELD RIEGER etux | RICHARD MAIER | AUGUST THOMAS | AUGUST THOMAS | VERDELLA AND ALBINUS THOMAS | WILBERT BLUMHARDT | MATCH LINE

RODS | 5454+99 | 5785+20

COUNTY AND STATE | E D M U N D S C O U N T Y , S O U T H D A K O T A



STATIONING

5454+99 MATCH LINE
5492+41 PWR. LN. 94' LT.
5503+06 O.H. PWR. LN.
5539+75 PWR. LN. 45' LT.
5555+81 O.H. PWR. LN.
5555+92 BAR DITCH
5556+09 EDGE GRAVEL RD.
5556+27 BAR DITCH
5556+40 BAR DITCH
5564+47 GRAVEL DR. 19' LT.
PWR. LN. 58' LT.
5597+81 PWR. LN. 54' LT.
5601+17 NEW O.H. PWR. LN. 12' LT.
5604+92 14" TREE 10' LT.
5605+02 14" TREE 9' LT.
5606+75 O.H. PWR. LN.
5606+75 O.H. PWR. LN.
5608+17 FNC., COR. 11.2' LT.
5608+19 BURIED ELECT. CABLE (COVER UNKNOWN)
5608+43 HWY. #42, ROW.
5608+43 HWY. #42
5608+95 EDGE PAVEMENT
5609+07 O.H. PWR. LN.
5609+27 BAR DITCH
5609+47 BAR DITCH
5610+10 BURIED ELECT. CABLE 28' LT.
5610+26 EDGE GRAVEL RD.
5610+44 BAR DITCH
5610+64 BURIED ELECT. CABLE (COVER UNKNOWN)
5613+40 18' FIELD RD.
5625+63 18' FIELD RD.
5635+42 FNC., COR. 8' LT.
5638+11 RD. 28.6° RT.
5638+11 22' PVT. DR.
5641+83 22' FIELD RD.
5651+65 O.H. PWR. LN.
5662+02 20' FIELD RD.
5670+40 RD. 23° RT.
5675+66 O.H. HIGH VOLTAGE PWR. LN.
5683+95 RD. 35° RT.
5690+40 12' PVT. DR.
5691+06 15' FIELD RD.
5701+86 RD. 26° RT.
5715+08 14' FIELD RD.
5715+48 O.H. PWR. LN.
5727+78 RD. 20° RT.
5739+50 WATER LINE
5745+89 12' FIELD RD.
5746+42 O.H. PWR. LN.
5755+32 RD. 33° RT.

TIE — INS

5537+39 ML 9461
5537+49 ML 9462
5537+60 ML 9463
5538+30 ML 9464
5538+87 ML 9465
5539+01 ML 9466
5539+40 T.I. #4577/ML 9467
5549+10 T.I. #4446
5545+87 T.I. #4442
5555+07 ML 9504
5555+20 T.I. #4459/TAP 2" BOWDLE
5555+32 ML 9505
5555+49 T.I. #4459/ML 9507
5555+76 RB 103
5556+72 T.I. #4461/ML 9508
5557+12 T.I. #4460 ML 9509
5557+52 T.I. #4460/ML 9510
5564+03 T.I. #4462/ML 9521
5564+47 ML 9523
5565+20 ML 9524
5565+78 T.I. #4463
5566+97 T.I. #4463/ML 9526
5567+37 T.I. #4464
5592+90 T.I. #4464
5593+45 T.I. #4465
5594+06 T.I. #4466
5594+61 T.I. #4467
5595+12 T.I. #4468
5595+50 T.I. #4469
5595+60 T.I. #4470
5596+30 T.I. #4471
5596+83 T.I. #4472
5597+23 T.I. #4473
5597+73 T.I. #4474
5598+18 T.I. #4475
5598+51 T.I. #4476
5598+85 T.I. #4477
5599+22 T.I. #4478
5599+48 T.I. #4479
5599+95 T.I. #4480
5600+25 T.I. #4481
5600+46 T.I. #4482
5600+66 T.I. #4483
5601+12 T.I. #4484
5601+44 T.I. #4705
(CUT OUT DO NOT USE)
5601+79 T.I. #4724
5601+86 T.I. #4723
5601+92 T.I. #4703
5601+98 A.T.I. #4702
5602+02 A.T.I. #4701
(CUT OUT DO NOT USE)
5602+02 CUT OUT DO NOT USE)
5602+04 T.I. #4724
5602+19 T.I. #4723
5602+23 T.I. #4596
5602+45 T.I. #4595
5602+86 T.I. #4591
5603+23 T.I. #4590
5603+77 T.I. #4589
5604+06 T.I. #4588
5604+33 T.I. #4587
5604+99 T.I. #4586
5605+46 T.I. #4585
5606+45 T.I. #4584
5606+93 T.I. #4583
5607+49 T.I. #4582
5607+89 T.I. #4581
5608+49 T.I. #4580
5608+69 T.I. #4579
5609+39 T.I. #4578
5609+78 T.I. #4577
5610+85 T.I. #4576
5611+66 ML 10117
5661+66 ML 10114
5687+04 ML 10152
5688+70 ML 10163
5690+79 T.I.8 #517
5691+28 T.I.8 #518
5691+39 T.I.8 #519
5723+73 T.I.8 #521
5723+77 T.I.8 #520
5739+10 T.I.8 #525
5751+48 T.I.8 #526
5767+76 T.I.8 #522 ML 10300
5767+82 T.I.8 #523
5768+09 T.I.8 #524 ML 10301

ITEM	MATERIAL DESCRIPTION	QUAN.	ITEM	MATERIAL DESCRIPTION	QUAN.

LEGEND
- Interstate Highway
- Federal Highway
- State Highway
- Mile Post
- Equation
- Foreign Pipeline
- Power Line
- Telephone Line
- Water Line
- Underground Cable
- Fence
- Valve (Show Line Size)
- Check Valve
- Relief Valve
- Meter Station
- P/L Warning Sign
- Bonding Station
- Sewer Line
- Rectifier
- Conc. Weight
- Anchor
- Anode Bed
- Elect. Test Lead
- Line Pipe Wall Thickness Change
- Transition Sleeve
- Aerial Marker

NO.	DATE	REVISION	DWN.	CHKD.	APP.	DATE
1	07/01	GENERAL AS-BUILT	TWCE	FS		1/16/93
2	9/94	CORRECTED M.P. STATIONING	TWCE			

FIELD NOTES: BOOK 528.1, PAGES 44-54

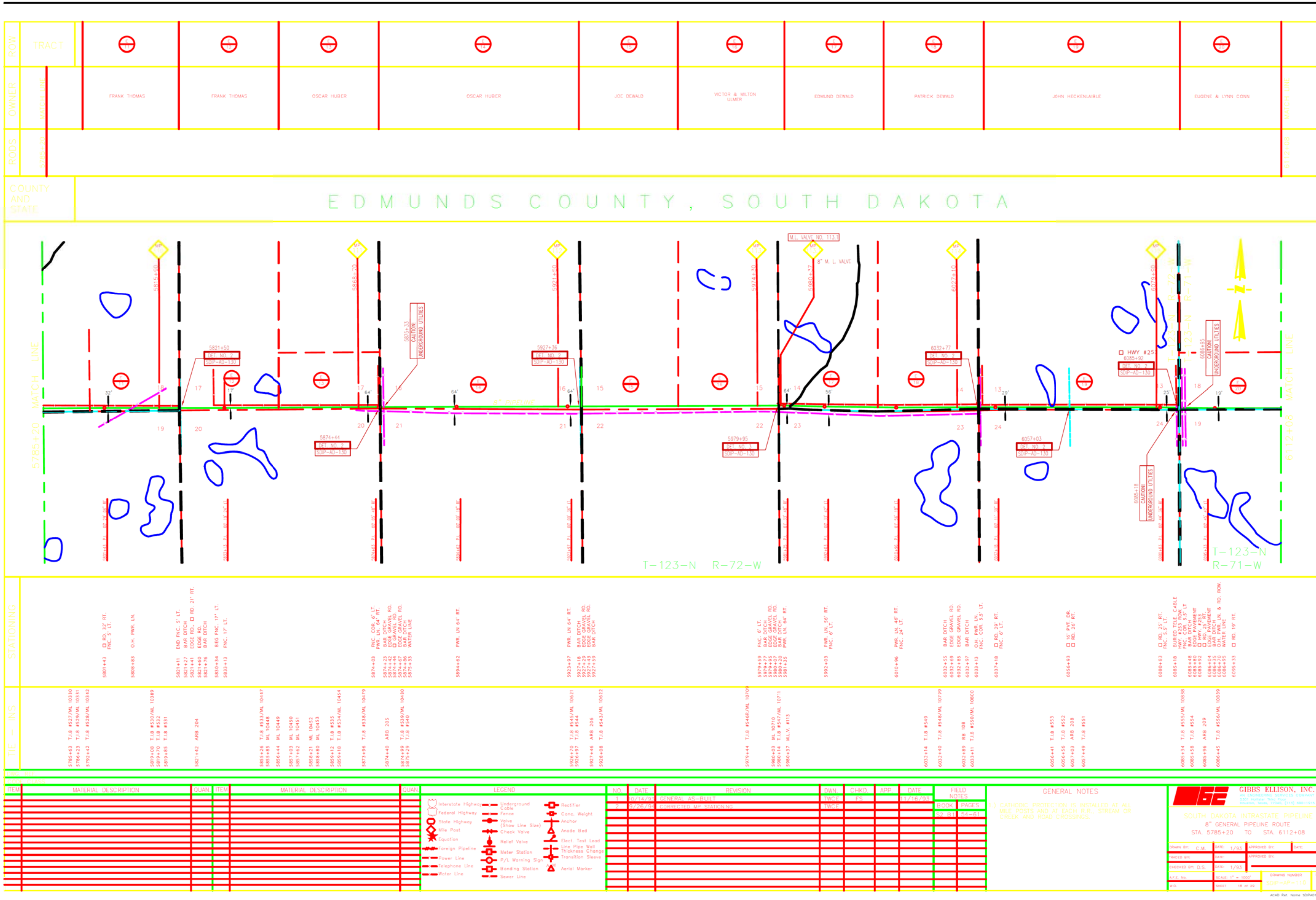
GENERAL NOTES
1) CATHODIC PROTECTION IS INSTALLED AT ALL MAIN POINTS AND AT EACH R.R., STREAM OR CREEK AND ROAD CROSSINGS.

GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
5301 Hollister Third Floor
Houston, Texas, 77040, (713) 690-1915

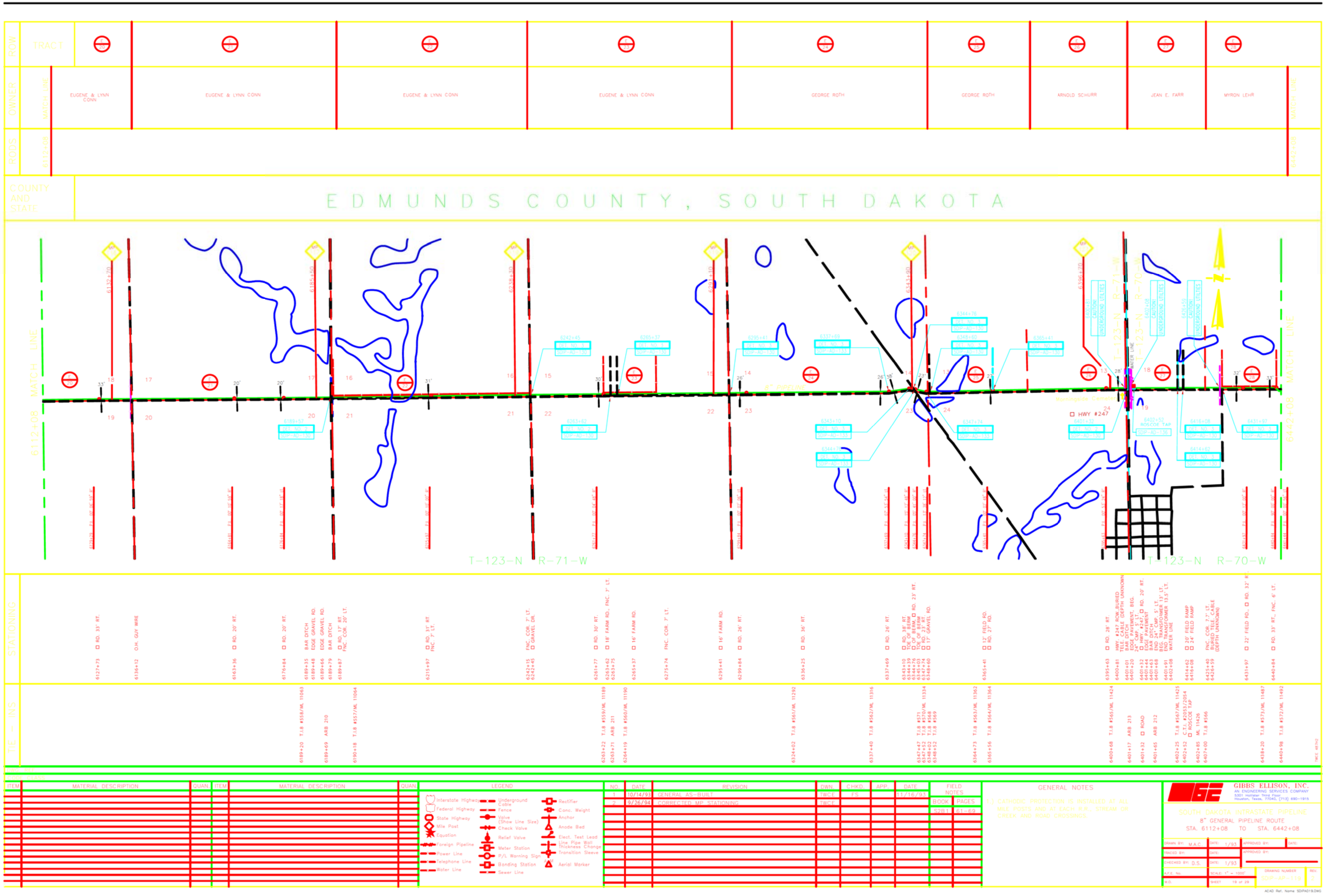
SOUTH DAKOTA INTRASTATE PIPELINE
6" TO 8" GENERAL PIPELINE ROUTE
STA. 5454+99 TO STA. 5785+20

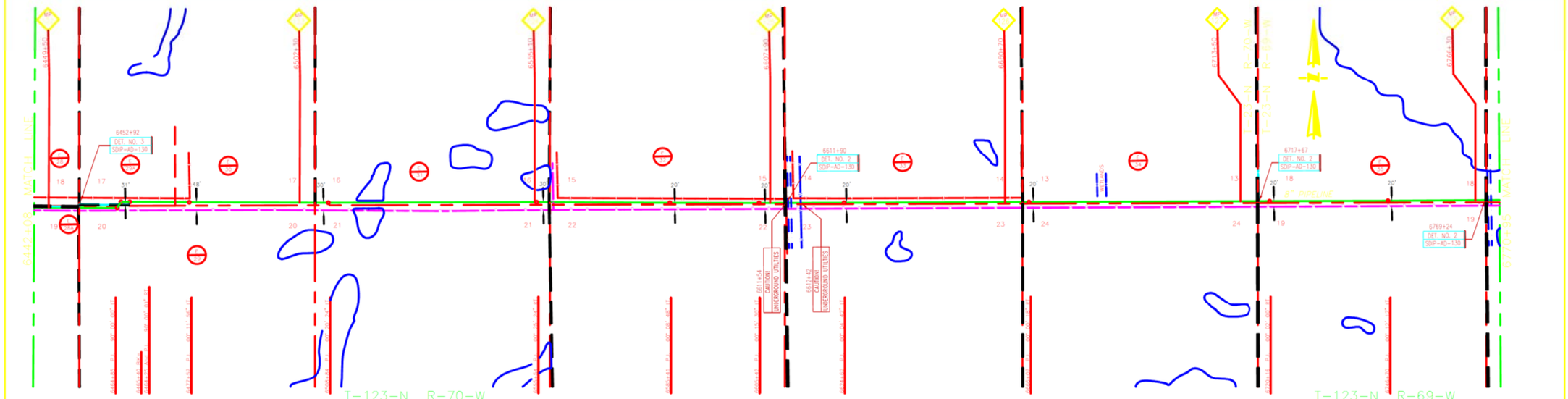
DRAWN BY: M.A.C. DATE: 1/93 APPROVED BY: DATE:
TRACED BY: DATE: APPROVED BY:
CHECKED BY: D.S. DATE: 1/93
A.F.E. NO.:
W.O.
SCALE: 1" = 1000'
SHEET 17 of 29
DRAWING NUMBER SDIPAD-L17
REV. 2

ACAD Ref. Name SDIPAD17.DWG



EDMUNDS COUNTY, SOUTH DAKOTA
FRANK THOMAS
OSCAR HUBER
JOE DEWALD
VICTOR & MILTON ULMER
EDMUND DEWALD
PATRICK DEWALD
JOHN HECKENLAIBLE
EUGENE & LYNN CONN
T-123-N R-72-W
T-123-N R-71-W
MATERIAL DESCRIPTION
LEGEND
GENERAL NOTES
GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
5301 Hollister Third Floor
Houston, Texas, 77040, (713) 690-1915
SOUTH DAKOTA INTRASTATE PIPELINE
8" GENERAL PIPELINE ROUTE
STA. 5785+20 TO STA. 6112+08
DRAWN BY: C.M. DATE: 1/93
CHECKED BY: D.S. DATE: 1/93
SCALE: 1" = 1000'
SHEET 18 of 29
DRAWING NUMBER SDIP-AP-118
REV. 2
ACAD Ref. Name SDIPA018.DWG


E D M U N D S   C O U N T Y ,   S O U T H   D A K O T A
T-123-N R-71-W
T-123-N R-70-W
HWY #247
GENERAL NOTES
GIBBS ELLISON, INC.
8" GENERAL PIPELINE ROUTE
STA. 6112+08 TO STA. 6442+08



NO.	DATE	REVISION	DWN.	CHKD.	APP.	DATE
1	10/13/93	GENERAL AS-BUILT	TWCE	FS		11/16/93
2	9/26/94	CORRECTED MP STATIONING	TWCE			

FIELD NOTES	
BOOK	PAGES
S2 B1	69-75

GENERAL NOTES

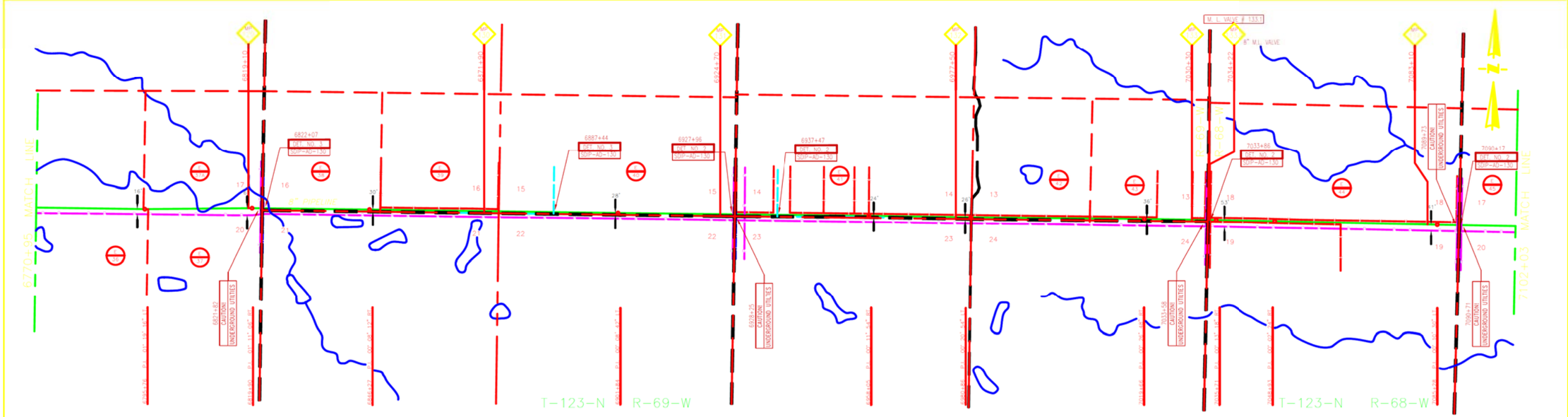
1.) CATHODIC PROTECTION IS INSTALLED AT ALL MILE POSTS AND AT EACH R.R., STREAM OR CREEK AND ROAD CROSSINGS.

GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
5301 Hollister Third Floor
Houston, Texas, 77040, (713) 690-1915

SOUTH DAKOTA INTRASTATE PIPELINE
8" GENERAL PIPELINE ROUTE
STA. 6442+08 TO STA. 6770+95

DRAWN BY: M.A.C.	DATE: 1/93	APPROVED BY:	DATE:
TRACED BY:	DATE:	APPROVED BY:	
CHECKED BY: D.S.	DATE: 1/93		
A.F.E. No.	SCALE: 1" = 1000'	DRAWING NUMBER SDIP-AP-120	REV. 2
W.O.	SHEET 20 of 29		

ACAD Ref. Name SDIPA020.DWG



NO.	DATE	REVISION	DWN.	CHKD.	APP.	DATE
1	10/13/93	GENERAL AS-BUILT	TWCE	FS		11/16/93
2	09/26/94	CORRECTED MP STATIONING	TWCE			

FIELD NOTES

BOOK	PAGES
S2B1	75-77
S2B2	1-6

GENERAL NOTES

1.) CATHODIC PROTECTION IS INSTALLED AT ALL MILE POSTS AND AT EACH R.R., STREAM OR CREEK AND ROAD CROSSINGS.

LEGEND: Interstate Highway; Federal Highway; State Highway; Mile Post; Equation; Foreign Pipeline; Power Line; Telephone Line; Water Line; Underground Cable; Fence; Valve (Show Line Size); Check Valve; Relief Valve; Meter Station; P/L Warning Sign; Bonding Station; Sewer Line; Rectifier; Conc. Weight; Anchor; Anode Bed; Elect. Test Lead; Line Pipe Wall Thickness Change; Transition Sleeve; Aerial Marker

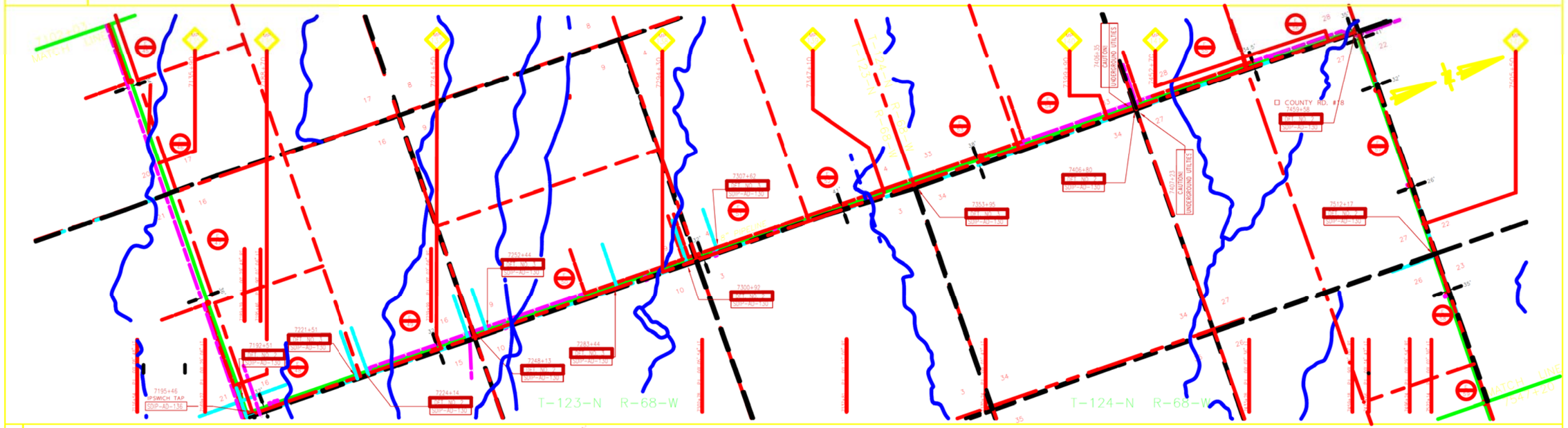
ITEM | MATERIAL DESCRIPTION | QUAN.

GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
5301 Hollister Third Floor
Houston, Texas, 77040, (713) 690-1915

SOUTH DAKOTA INTRASTATE PIPELINE
8" GENERAL PIPELINE ROUTE
STA. 6770+95 TO STA. 7102+03

DRAWN BY: S.M.M.	DATE: 1/93	APPROVED BY:	DATE:
TRACED BY:	DATE:	APPROVED BY:	
CHECKED BY: D.S.	DATE: 1/93		
A.F.E. No.	SCALE: 1" = 1000'	DRAWING NUMBER SDIP-AP-121	REV. 2
W.O.	SHEET 21 of 29		

ACAD Ref. Name SDIPA021.DWG



NO.	DATE	REVISION	DWN.	CHKD.	APP.	DATE
1	10/13/93	GENERAL AS-BUILT	TWCE	FS		11/16/93
2	09/26/94	CORRECTED M.P. STATIONING	TWCE			

FIELD NOTES	
BOOK	PAGES
S2B2	6-18

GENERAL NOTES

1.) CATHODIC PROTECTION IS INSTALLED AT ALL MILE POSTS AND AT EACH R.R., STREAM OR CREEK AND ROAD CROSSINGS.

GIBBS ELLISON, INC.
AN ENGINEERING SERVICES COMPANY
5301 Hollister Third Floor
Houston, Texas, 77040, (713) 690-1915

SOUTH DAKOTA INTRASTATE PIPELINE
8" GENERAL PIPELINE ROUTE
STA. 7102+03 TO STA. 7547+20

DRAWN BY: M.A.C.	DATE: 1/93	APPROVED BY:	DATE:
TRACED BY:	DATE:	APPROVED BY:	
CHECKED BY: D.S.	DATE: 1/93		
A.F.E. No.	SCALE: 1" = 1000'	DRAWING NUMBER	REV.
W.O.	SHEET 22 of 29	SDIP-AP-122	2

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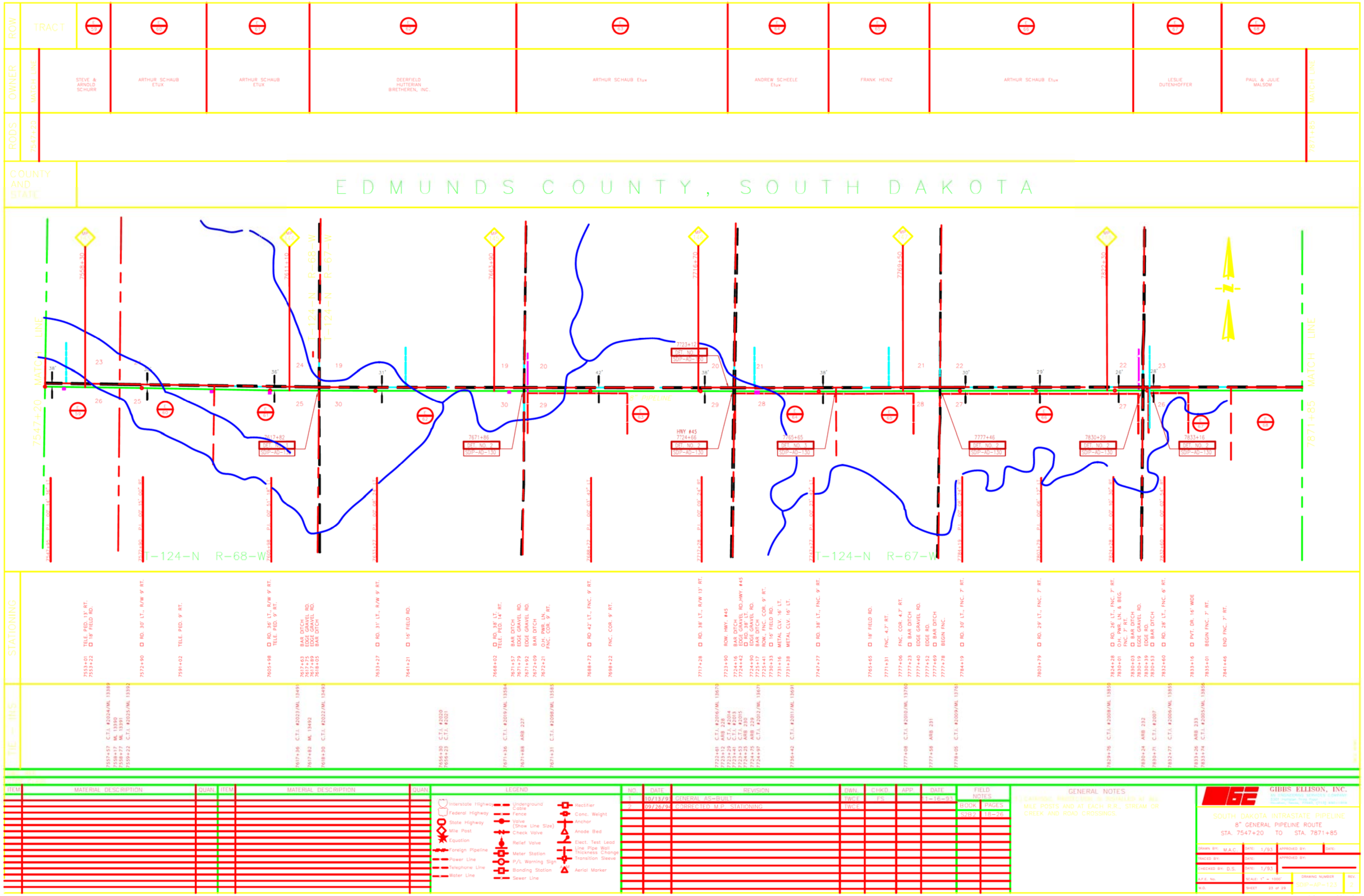
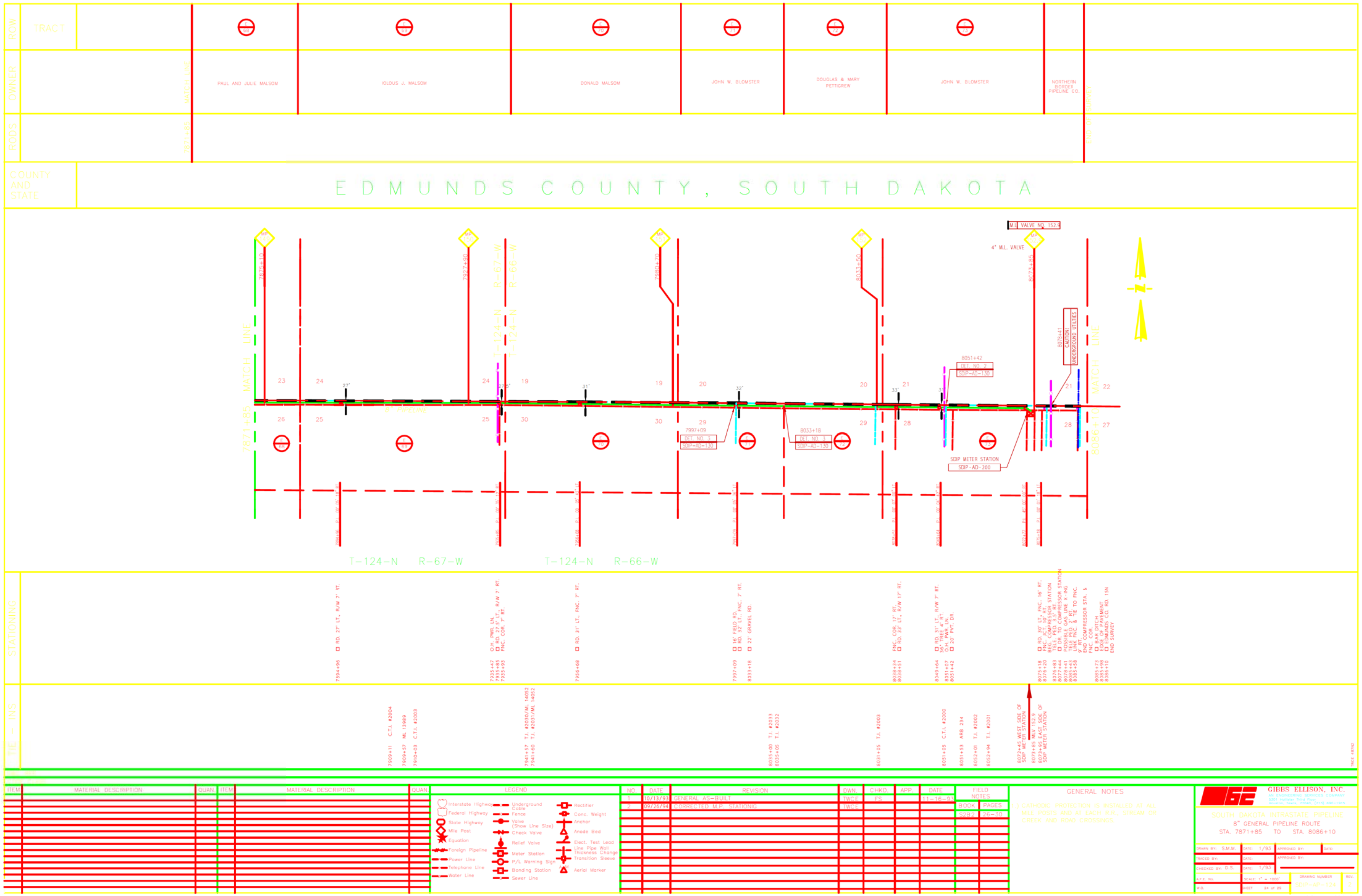


TRACT
OWNER
STEVE & ARNOLD SCHURR
ARTHUR SCHAUB ETUX
DEERFIELD HUTTERIAN BRETHEREN, INC.
ARTHUR SCHAUB Etux
ANDREW SCHEELE Etux
FRANK HEINZ
LESLIE DUTENHOFFER
PAUL & JULIE MALSOM
COUNTY AND STATE
EDMUNDS COUNTY, SOUTH DAKOTA
T-124-N R-68-W
T-124-N R-67-W
STATIONING
ITEM
MATERIAL DESCRIPTION
QUAN.
LEGEND
NO.
DATE
REVISION
GENERAL NOTES
GIBBS ELLISON, INC.
8" GENERAL PIPELINE ROUTE
STA. 7547+20 TO STA. 7871+85



TRACT
PAUL AND JULIE MALSOM
DONALD MALSOM
JOHN W. BLOMSTER
DOUGLAS & MARY PETTIGREW
JOHN W. BLOMSTER
NORTHERN BORDER PIPELINE CO.
COUNTY AND STATE
EDMUNDS COUNTY, SOUTH DAKOTA
MATCH LINE
M.L. VALVE NO. 152.9
4" M.L. VALVE
SDIP METER STATION
T-124-N R-67-W
T-124-N R-66-W
MATERIAL DESCRIPTION
LEGEND
REVISION
GENERAL AS-BUILT
CORRECTED M.P. STATIONING
GENERAL NOTES
GIBBS ELLISON, INC.
8" GENERAL PIPELINE ROUTE
STA. 7871+85 TO STA. 8086+10

STANDARD FORM OF GENERAL CONDITIONS OF CONTRACT BETWEEN OWNER AND DESIGN-BUILDER

#19819472 v.3
10/12/17 524803.03

Document No. 535
Second Edition, 2010

Washington, DC

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Article 1

General

1.1 Mutual Obligations

1.1.1 *Owner and Design-Builder* commit at all times to cooperate fully with each other, and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents.

1.2 Basic Definitions

1.2.1 *Agreement* refers to the executed contract between Owner and Design-Builder under either DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder - Lump Sum* (2010 Edition) or DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2010 Edition).

1.2.2 *Basis of Design Documents* are as follows: For DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee With an Option for a Guaranteed Maximum Price*, the Basis of Design Documents are those documents specifically listed in, as applicable, the GMP Exhibit or GMP Proposal as being the "Basis of Design Documents." For DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum*, the Basis of Design Documents are the Owner's Project Criteria, Design-Builder's Proposal and the Deviation List, if any.

1.2.3 *Construction Documents* are the documents, consisting of Drawings and Specifications, to be prepared or assembled by the Design-Builder consistent with the Basis of Design Documents unless a deviation from the Basis of Design Documents is specifically set forth in a Change Order executed by both the Owner and Design-Builder, as part of the design review process contemplated by Section 2.4 of these General Conditions of Contract.

1.2.4 *Day* or *Days* shall mean calendar days unless otherwise specifically noted in the Contract Documents.

1.2.5 *Design-Build Team* is comprised of the Design-Builder, the Design Consultant, and key Subcontractors identified by the Design-Builder.

1.2.6 *Design Consultant* is a qualified, licensed design professional who is not an employee of Design-Builder, but is retained by Design-Builder, or employed or retained by anyone under contract with Design-Builder, to furnish design services required under the Contract Documents. A Design Sub-Consultant is a qualified, licensed design professional who is not an employee of the Design Consultant, but is retained by the Design Consultant or employed or retained by anyone under contract to Design Consultant, to furnish design services required under the Contract Documents.

1.2.7 *Final Completion* is the date on which all Work is complete in accordance with the Contract Documents, including but not limited to, any items identified in the punch list prepared under Section 6.6.1 and the submission of all documents set forth in Section 6.7.2.

1.2.8 *Force Majeure Events* are those events that are beyond the control of both Design-Builder and Owner, including the events of war, floods, labor disputes, earthquakes, epidemics, adverse weather conditions not reasonably anticipated, and other acts of God.

1.2.9 *General Conditions of Contract* refer to this DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2010 Edition).

1.2.10 *GMP Exhibit* means that exhibit attached to DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee With an Option for a Guaranteed*

Maximum Price, which exhibit will have been agreed upon by Owner and Design-Builder prior to the execution of the Agreement.

1.2.11 *GMP Proposal* means that proposal developed by Design-Builder in accordance with Section 6.6 of DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee With an Option for a Guaranteed Maximum Price*.

1.2.12 *Hazardous Conditions* are any materials, wastes, substances and chemicals deemed to be hazardous under applicable Legal Requirements, or the handling, storage, remediation, or disposal of which are regulated by applicable Legal Requirements.

1.2.13 *Legal Requirements* are all applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the Project or Site, the practices involved in the Project or Site, or any Work.

1.2.14 *Owner's Project Criteria* are developed by or for Owner to describe Owner's program requirements and objectives for the Project, including use, space, price, time, site and expandability requirements, as well as submittal requirements and other requirements governing Design-Builder's performance of the Work. Owner's Project Criteria may include conceptual documents, design criteria, design performance specifications, design specifications, and LEED® or other sustainable design criteria and other Project-specific technical materials and requirements.

1.2.15 *Site* is the land or premises on which the Project is located.

1.2.16 *Subcontractor* is any person or entity retained by Design-Builder as an independent contractor to perform a portion of the Work and shall include materialmen and suppliers.

1.2.17 *Sub-Subcontractor* is any person or entity retained by a Subcontractor as an independent contractor to perform any portion of a Subcontractor's Work and shall include materialmen and suppliers.

1.2.18 *Substantial Completion* or *Substantially Complete* means the date on which the Work, or an agreed upon portion of the Work, is sufficiently complete in accordance with the Contract Documents so that Owner can occupy and use the Project or a portion thereof for its intended purposes.

1.2.19 *Work* is comprised of all Design-Builder's design, construction and other services required by the Contract Documents, including procuring and furnishing all materials, equipment, services and labor reasonably inferable from the Contract Documents.

Article 2

Design-Builder's Services and Responsibilities

2.1 General Services.

2.1.1 Design-Builder's Representative shall be reasonably available to Owner and shall have the necessary expertise and experience required to supervise the Work. Design-Builder's Representative shall communicate regularly with Owner and shall be vested with the authority to act on behalf of Design-Builder. Design-Builder's Representative may be replaced only with the mutual agreement of Owner and Design-Builder.

2.1.2 Design-Builder shall provide Owner with a monthly status report detailing the progress of the Work, including (i) whether the Work is proceeding according to schedule, (ii) whether discrepancies, conflicts, or ambiguities exist in the Contract Documents that require resolution, (iii)

whether health and safety issues exist in connection with the Work; (iv) status of the contingency account to the extent provided for in the Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee with an Option for a Guaranteed Maximum Price; and (v) other items that require resolution so as not to jeopardize Design-Builder's ability to complete the Work for the Contract Price and within the Contract Time(s).

2.1.3 Unless a schedule for the execution of the Work has been attached to the Agreement as an exhibit at the time the Agreement is executed, Design-Builder shall prepare and submit, at least three (3) days prior to the meeting contemplated by Section 2.1.4 hereof, a schedule for the execution of the Work for Owner's review and response. The schedule shall indicate the dates for the start and completion of the various stages of Work, including the dates when Owner information and approvals are required to enable Design-Builder to achieve the Contract Time(s). The schedule shall be revised as required by conditions and progress of the Work, but such revisions shall not relieve Design-Builder of its obligations to complete the Work within the Contract Time(s), as such dates may be adjusted in accordance with the Contract Documents. Owner's review of, and response to, the schedule shall not be construed as relieving Design-Builder of its complete and exclusive control over the means, methods, sequences and techniques for executing the Work.

2.1.4 The parties will meet within seven (7) days after execution of the Agreement to discuss issues affecting the administration of the Work and to implement the necessary procedures, including those relating to submittals and payment, to facilitate the ability of the parties to perform their obligations under the Contract Documents.

2.2 Design Professional Services.

2.2.1 Design-Builder shall, consistent with applicable state licensing laws, provide through qualified, licensed design professionals employed by Design-Builder, or procured from qualified, independent licensed Design Consultants, the necessary design services, including architectural, engineering and other design professional services, for the preparation of the required drawings, specifications and other design submittals to permit Design-Builder to complete the Work consistent with the Contract Documents. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any Design Consultant.

2.3 Standard of Care for Design Professional Services.

2.3.1 The standard of care for all design professional services performed to execute the Work shall be the care and skill ordinarily used by members of the design profession practicing under similar conditions at the same time and locality of the Project.

2.4 Design Development Services.

2.4.1 Design-Builder and Owner shall, consistent with any applicable provision of the Contract Documents, agree upon any interim design submissions that Owner may wish to review, which interim design submissions may include design criteria, drawings, diagrams and specifications setting forth the Project requirements. Interim design submissions shall be consistent with the Basis of Design Documents, as the Basis of Design Documents may have been changed through the design process set forth in this Section 2.4.1. On or about the time of the scheduled submissions, Design-Builder and Owner shall meet and confer about the submissions, with Design-Builder identifying during such meetings, among other things, the evolution of the design and any changes to the Basis of Design Documents, or, if applicable, previously submitted design submissions. Changes to the Basis of Design Documents, including those that are deemed minor changes under Section 9.3.1, shall be processed in accordance with Article 9. Minutes of the meetings, including a full listing of all changes, will be maintained by Design-Builder and provided to all attendees for review. Following the design review meeting, Owner shall review and approve the interim design submissions and meeting minutes in a time that is consistent with the turnaround times set forth in Design-Builder's schedule.

2.4.2 Design-Builder shall submit to Owner Construction Documents setting forth in detail drawings and specifications describing the requirements for construction of the Work. The Construction Documents shall be consistent with the latest set of interim design submissions, as such submissions may have been modified in a design review meeting and recorded in the meetings minutes. The parties shall have a design review meeting to discuss, and Owner shall review and approve, the Construction Documents in accordance with the procedures set forth in Section 2.4.1 above. Design-Builder shall proceed with construction in accordance with the approved Construction Documents and shall submit one set of approved Construction Documents to Owner prior to commencement of construction.

2.4.3 Owner's review and approval of interim design submissions, meeting minutes, and the Construction Documents is for the purpose of mutually establishing a conformed set of Contract Documents compatible with the requirements of the Work. Neither Owner's review nor approval of any interim design submissions, meeting minutes, and Construction Documents shall be deemed to transfer any design liability from Design-Builder to Owner.

2.4.4 To the extent not prohibited by the Contract Documents or Legal Requirements, Design-Builder may prepare interim design submissions and Construction Documents for a portion of the Work to permit construction to proceed on that portion of the Work prior to completion of the Construction Documents for the entire Work.

2.5 Legal Requirements.

2.5.1 Design-Builder shall perform the Work in accordance with all Legal Requirements and shall provide all notices applicable to the Work as required by the Legal Requirements.

2.5.2 The Contract Price and/or Contract Time(s) shall be adjusted to compensate Design-Builder for the effects of any changes in the Legal Requirements enacted after the date of the Agreement affecting the performance of the Work, or if a Guaranteed Maximum Price is established after the date of the Agreement, the date the parties agree upon the Guaranteed Maximum Price. Such effects may include, without limitation, revisions Design-Builder is required to make to the Construction Documents because of changes in Legal Requirements.

2.6 Government Approvals and Permits.

2.6.1 Except as identified in an Owner's Permit List attached as an exhibit to the Agreement, Design-Builder shall obtain and pay for all necessary permits, approvals, licenses, government charges and inspection fees required for the prosecution of the Work by any government or quasi-government entity having jurisdiction over the Project.

2.6.2 Design-Builder shall provide reasonable assistance to Owner in obtaining those permits, approvals and licenses that are Owner's responsibility.

2.7 Design-Builder's Construction Phase Services.

2.7.1 Unless otherwise provided in the Contract Documents to be the responsibility of Owner or a separate contractor, Design-Builder shall provide through itself or Subcontractors the necessary supervision, labor, inspection, testing, start-up, material, equipment, machinery, temporary utilities and other temporary facilities to permit Design-Builder to complete construction of the Project consistent with the Contract Documents.

2.7.2 Design-Builder shall perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents. Design-Builder shall at all times exercise complete and exclusive control over the means, methods, sequences and techniques of construction.

2.7.3 Design-Builder shall employ only Subcontractors who are duly licensed and qualified to

perform the Work consistent with the Contract Documents. Owner may reasonably object to Design-Builder's selection of any Subcontractor, provided that the Contract Price and/or Contract Time(s) shall be adjusted to the extent that Owner's decision impacts Design-Builder's cost and/or time of performance.

2.7.4 Design-Builder assumes responsibility to Owner for the proper performance of the Work of Subcontractors and any acts and omissions in connection with such performance. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any Subcontractor or Sub-Subcontractor, including but not limited to any third-party beneficiary rights.

2.7.5 Design-Builder shall coordinate the activities of all Subcontractors. If Owner performs other work on the Project or at the Site with separate contractors under Owner's control, Design-Builder agrees to reasonably cooperate and coordinate its activities with those of such separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

2.7.6 Design-Builder shall keep the Site reasonably free from debris, trash and construction wastes to permit Design-Builder to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas. Upon Substantial Completion of the Work, or a portion of the Work, Design-Builder shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit Owner to occupy the Project or a portion of the Project for its intended use.

2.8 Design-Builder's Responsibility for Project Safety.

2.8.1 Design-Builder recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting, (ii) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site, and (iii) all other property at the Site or adjacent thereto and in existing pipelines described in crossing agreements or otherwise discovered by Design-Builder in the performance of the Work. Design-Builder assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work. Design-Builder shall, prior to commencing construction, designate a Safety Representative with the necessary qualifications and experience to supervise the implementation and monitoring of all safety precautions and programs related to the Work. Unless otherwise required by the Contract Documents, Design-Builder's Safety Representative shall be an individual stationed at the Site who may have responsibilities on the Project in addition to safety. The Safety Representative shall make routine daily inspections of the Site and shall hold weekly safety meetings with Design-Builder's personnel, Subcontractors and others as applicable.

2.8.2 Design-Builder and Subcontractors shall comply with all Legal Requirements relating to safety, as well as any Owner-specific safety requirements set forth in the Contract Documents, provided that such Owner-specific requirements do not violate any applicable Legal Requirement. Design-Builder will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to Owner's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.

2.8.3 Design-Builder's responsibility for safety under this Section 2.8 is not intended in any way to relieve Subcontractors and Sub-Subcontractors of their own contractual and legal obligations and responsibility for (i) complying with all Legal Requirements, including those related to health and safety matters, and (ii) taking all necessary measures to implement and monitor all safety precautions and programs to guard against injuries, losses, damages or accidents resulting from their performance of the Work.

2.9 Design-Builder's Warranty.

2.9.1 Design-Builder warrants to Owner that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship. Design-Builder's warranty obligation excludes defects caused by abuse, alterations, or failure to maintain the Work in a commercially reasonable manner. Nothing in this warranty is intended to limit any manufacturer's warranty which provides Owner with greater warranty rights than set forth in this Section 2.9 or the Contract Documents. Design-Builder will provide Owner with all manufacturers' warranties upon Substantial Completion.

2.10 Correction of Defective Work.

2.10.1 Design-Builder agrees to correct any Work that is found to not be in conformance with the Contract Documents, including that part of the Work subject to Section 2.9 hereof, within a period of one year from the date of Substantial Completion of the Work or any portion of the Work, or within such longer period to the extent required by any specific warranty included in the Contract Documents.

2.10.2 Design-Builder shall, within seven (7) days of receipt of written notice from Owner that the Work is not in conformance with the Contract Documents, take meaningful steps to commence correction of such nonconforming Work, including the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work affected by the nonconforming Work. If Design-Builder fails to commence the necessary steps within such seven (7) day period, Owner, in addition to any other remedies provided under the Contract Documents, may provide Design-Builder with written notice that Owner will commence correction of such nonconforming Work with its own forces. If Owner does perform such corrective Work, Design-Builder shall be responsible for all reasonable costs incurred by Owner in performing such correction. If the nonconforming Work creates an emergency requiring an immediate response, the seven (7) day period identified herein shall be deemed inapplicable.

2.10.3 The one-year period referenced in Section 2.10.1 above applies only to Design-Builder's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies Owner may have regarding Design-Builder's other obligations under the Contract Documents.

Article 3

Owner's Services and Responsibilities

3.1 Duty to Cooperate.

3.1.1 Owner shall, throughout the performance of the Work, cooperate with Design-Builder and perform its responsibilities, obligations and services in a timely manner to facilitate Design-Builder's timely and efficient performance of the Work and so as not to delay or interfere with Design-Builder's performance of its obligations under the Contract Documents.

3.1.2 Owner shall provide timely reviews and approvals of interim design submissions and Construction Documents consistent with the turnaround times set forth in Design-Builder's schedule.

3.1.3 Owner shall give Design-Builder timely notice of any Work that Owner notices to be defective or not in compliance with the Contract Documents.

3.2 Furnishing of Services and Information.

3.2.1 Unless expressly stated to the contrary in the Contract Documents, Owner shall provide, at its own cost and expense, for Design-Builder's information and use the following, all of which Design-Builder is entitled to rely upon in performing the Work:

3.2.1.1 Surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;

3.2.1.2 Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;

3.2.1.3 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper design and construction of the Project and enable Design-Builder to perform the Work;

3.2.1.4 A legal description of the Site;

3.2.1.5 To the extent available, record drawings of any existing structures at the Site; and

3.2.1.6 To the extent available, environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, in existence at the Site.

3.2.2 Owner is responsible for securing and executing all necessary agreements with adjacent land or property owners that are necessary to enable Design-Builder to perform the Work. Owner is further responsible for all costs, including attorneys' fees, incurred in securing these necessary agreements.

3.3 Financial Information.

3.3.1 At Design-Builder's request prior to commencing the Work, Owner shall promptly furnish reasonable evidence satisfactory to Design-Builder that Owner has adequate funds available and committed to fulfill all of Owner's contractual obligations under the Contract Documents. If Owner fails to furnish such financial information in a timely manner, Design-Builder may stop Work under Section 11.3 hereof or exercise any other right permitted under the Contract Documents.

3.3.2 Design-Builder shall cooperate with the reasonable requirements of Owner's lenders or other financial sources. Notwithstanding the preceding sentence, after execution of the Agreement Design-Builder shall have no obligation to execute for Owner or Owner's lenders or other financial sources any documents or agreements that require Design-Builder to assume obligations or responsibilities greater than those existing obligations Design-Builder has under the Contract Documents.

3.4 Owner's Representative.

3.4.1 Owner's Representative shall be responsible for providing Owner-supplied information and approvals in a timely manner to permit Design-Builder to fulfill its obligations under the Contract Documents. Owner's Representative shall also provide Design-Builder with prompt notice if it observes any failure on the part of Design-Builder to fulfill its contractual obligations, including any errors, omissions or defects in the performance of the Work. Owner's Representative shall communicate regularly with Design-Builder and shall be vested with the authority to act on behalf of Owner.

3.5 Government Approvals and Permits.

3.5.1 Owner shall obtain and pay for all necessary permits, approvals, licenses, government charges and inspection fees set forth in the Owner's Permit List attached as an exhibit to the Agreement.

3.5.2 Owner shall provide reasonable assistance to Design-Builder in obtaining those permits, approvals and licenses that are Design-Builder's responsibility.

3.6 Owner's Separate Contractors.

3.6.1 Owner is responsible for all work performed on the Project or at the Site by separate contractors under Owner's control. Owner shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, Design-Builder in order to enable Design-Builder to timely complete the Work consistent with the Contract Documents.

Article 4

Hazardous Conditions and Differing Site Conditions

4.1 Hazardous Conditions.

4.1.1 Unless otherwise expressly provided in the Contract Documents to be part of the Work, Design-Builder is not responsible for any Hazardous Conditions encountered at the Site. Upon encountering any Hazardous Conditions, Design-Builder will stop Work immediately in the affected area and duly notify Owner and, if required by Legal Requirements, all government or quasi-government entities with jurisdiction over the Project or Site.

4.1.2 Upon receiving notice of the presence of suspected Hazardous Conditions, Owner shall take the necessary measures required to ensure that the Hazardous Conditions are remediated or rendered harmless. Such necessary measures shall include Owner retaining qualified independent experts to (i) ascertain whether Hazardous Conditions have actually been encountered, and, if they have been encountered, (ii) prescribe the remedial measures that Owner must take either to remove the Hazardous Conditions or render the Hazardous Conditions harmless.

4.1.3 Design-Builder shall be obligated to resume Work at the affected area of the Project only after Owner's expert provides it with written certification that (i) the Hazardous Conditions have been removed or rendered harmless and (ii) all necessary approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project or Site.

4.1.4 Design-Builder will be entitled, in accordance with these General Conditions of Contract, to an adjustment in its Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance have been adversely impacted by the presence of Hazardous Conditions.

4.1.5 To the fullest extent permitted by law, Owner shall indemnify, defend and hold harmless Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them, and their officers, directors, employees and agents, from and against any and all claims, losses, damages, liabilities and expenses, including attorneys' fees and expenses, arising out of or resulting from the presence, removal or remediation of Hazardous Conditions at the Site.

4.1.6 Notwithstanding the preceding provisions of this Section 4.1, Owner is not responsible for damage to pipelines resulting in the Hazardous Conditions caused by Design-Builder's negligence or willful misconduct or Hazardous Conditions introduced to the Site by Design-Builder, Subcontractors or anyone for whose acts they may be liable. To the fullest extent permitted by law, Design-Builder shall indemnify, defend and hold harmless Owner and Owner's officers, directors, employees and agents from and against all claims, losses, damages, liabilities and expenses, including attorneys' fees and expenses, arising out of or resulting from those Hazardous Conditions introduced to the Site or resulting from pipeline damage caused by Design-Builder, Subcontractors or anyone for whose acts they may be liable.

4.2 Differing Site Conditions.

4.2.1 Concealed or latent physical conditions or subsurface conditions at the Site that (i) materially differ from the conditions indicated in the Contract Documents or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the Work are collectively referred to herein as "Differing Site Conditions." If Design-Builder encounters a Differing Site Condition, Design-Builder will be entitled to an adjustment in the Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance are adversely impacted by the Differing Site Condition.

4.2.2 Upon encountering a Differing Site Condition, Design-Builder shall provide prompt written notice to Owner of such condition, which notice shall not be later than fourteen (14) days after such condition has been encountered. Design-Builder shall, to the extent reasonably possible, provide such notice before the Differing Site Condition has been substantially disturbed or altered.

Article 5

Insurance and Bonds

5.1 Design-Builder's Insurance Requirements.

5.1.1 Design-Builder is responsible for procuring and maintaining the insurance for the coverage amounts all as set forth in Exhibit 5 of the Agreement and as provided below. Coverage shall be secured from insurance companies authorized to do business in the state in which the Project is located, and with a minimum rating set forth in the Agreement.

5.1.2 Design-Builder's insurance shall specifically delete any design-build or similar exclusions that could compromise coverages because of the design-build delivery of the Project.

5.1.3 Prior to commencing any construction services hereunder, Design-Builder shall provide Owner with certificates evidencing that (i) all insurance obligations required by the Contract Documents are in full force and in effect and will remain in effect for the duration required by the Contract Documents and (ii) no insurance coverage will be canceled, renewal refused, or materially changed unless at least thirty (30) days prior written notice is given to Owner. If any of the foregoing insurance coverages are required to remain in force after final payment are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the Final Application for Payment. If any information concerning reduction of coverage is not furnished by the insurer, it shall be furnished by the Design-Builder with reasonable promptness according to the Design-Builder's information and belief.

5.1.4 Each policy shall contain a provision that the policy will not be canceled or allowed to expire until at least thirty (30) days' prior written notice has been given to the Owner. Design-Builder's insurance as required by this Article 5 shall include the insurance described in the certificate of insurance attached hereto as Exhibit 5 and made part hereof for all purposes, which insurance shall be maintained by Design-Builder throughout the term of this Agreement. The commercial general liability insurance shall be on an ISO Form 01 0196 or equivalent providing the coverage described in the certificate of insurance with limits of Design-Builder's commercial general liability insurance applying separately to this Project pursuant to ISO Form CG25 03 03 97 endorsement or its equivalent. Each policy of insurance obtained by Design-Builder pursuant to the Contract shall provide (i) that such policy shall not be canceled, endorsed, altered or re-issued to effect a change in coverage for any reason or to any extent whatsoever unless the insured shall have first given Owner and Lender at least thirty (30) days prior written notice; (ii) that Owner and/or Lender may, but shall not be obligated to, make premium payments to prevent the cancellation, endorsement, alteration or re-issuance of such policy; and any premium payments paid by Owner and/or Lender shall be credited against the Contract Sum; (iii) that all insurance policies shall be

payable to Design-Builder, Owner and Lender as their respective interests may appear and be subject to the standard mortgage clause; (iv) as to the Design-Builder's commercial general liability insurance that it is primary as to any commercial general liability insurance carried by the Owner and Owner and Lender are additional insureds pursuant to CG Form 2026 1185 Endorsement or its equivalent with no qualifications, except that the primary status of Design-Builder's commercial general liability policy and the naming of Owner and Lender as additional insureds shall only be to the extent of Design-Builder's indemnification obligations under Article 7 and (v) the Design-Builder's worker's compensation coverage and commercial general liability coverage shall contain waiver of subrogation endorsements in favor of the Owner.

Design-Builder shall also furnish pollution liability insurance of the Contractor arising out of any sudden and/or non-sudden pollution impairment of the environment, including clean-up costs and defense that arise from the operations of the Contract (whether by the Design-Builder or a SubDesign Builder). Coverage under this policy shall have a limit of not less than $2,000,000 per claim, annual aggregate, with no exclusion or sublimit for mold and no sunset clause. Coverages under this policy shall also include, without limitation, emergency response costs, transportation coverage and non-owned disposal site (NODS) coverage.

Design-Builder shall also furnish professional liability insurance covering the liability of the Design-Builder for any and all errors or omissions committed in the performance of the Work. The coverage shall be maintained during the entire term of the operations, and for at least six (6) years following completion of the Project to the extent available at commercially reasonable rates. The policy shall have limits of liability of not less than $2,000,000 per claim and $4,000,000 annual aggregate, with no exclusion or sublimit for mold and with limits re-instated annually.

5.2 Owner's Liability Insurance.

5.2.1 Owner shall procure and maintain from insurance companies authorized to do business in the state in which the Project is located such liability insurance as set forth in the Insurance Exhibit to the Agreement to protect Owner from claims which may arise from the performance of Owner's obligations under the Contract Documents or Owner's conduct during the course of the Project.

5.3 Design-Builder's Property Insurance.

5.3.1 Unless otherwise provided in the Contract Documents, Owner may, but shall not be obligated to, procure and maintain from insurance companies authorized to do business in the state in which the Project is located property insurance upon the entire Project to the full insurable value of the Project, including professional fees, overtime premiums and all other expenses incurred to replace or repair the insured property. If applicable, the property insurance obtained by Owner shall include as additional insureds the interests of Owner, Design-Builder, Design Consultants and Subcontractors of any tier. Such insurance shall include, but not be limited to, as applicable, the perils of fire and extended coverage, theft, vandalism, malicious mischief, collapse, flood, earthquake, debris removal and other perils or causes of loss as called for in the Contract Documents. The property insurance shall include physical loss or damage to the Work, including materials and equipment in transit, at the Site or at another location as may be indicated in Design-Builder's Application for Payment and approved by Owner. The Owner is responsible for the payment of any deductibles under the insurance required by this Section 5.3.1.

5.3.2 Unless the Contract Documents provide otherwise, Design-Builder shall procure and maintain boiler and machinery insurance that will include the interests of Owner, Design-Builder, Design Consultants, and Subcontractors of any tier. The Owner is responsible for the payment of any deductibles under the insurance required by this Section 5.3.2.

5.3.3 Prior to Design-Builder commencing any Work, Owner shall provide Design-Builder with certificates evidencing that (i) all Owner's insurance obligations required by the Contract Documents are in full force and in effect and will remain in effect until Design-Builder has completed all of the Work and has received final payment from Owner and (ii) no insurance coverage will be

canceled, renewal refused, or materially changed unless at least thirty (30) days prior written notice is given to Design-Builder. Owner's property insurance shall not lapse or be canceled if Owner occupies a portion of the Work pursuant to Section 6.6.3 hereof. Owner shall provide Design-Builder with the necessary endorsements from the insurance company prior to occupying a portion of the Work.

5.3.4 Any loss covered under Design-Builder's property insurance, if any, shall be adjusted with Owner and Design-Builder and made payable to both of them as trustees for the insureds as their interests may appear, subject to any applicable mortgage clause. All insurance proceeds received as a result of any loss will be placed in a separate account and distributed in accordance with such agreement as the interested parties may reach. Any disagreement concerning the distribution of any proceeds will be resolved in accordance with Article 10 hereof.

5.3.5 Owner and Design-Builder waive against each other and Owner's separate contractors, Design Consultants, Subcontractors, agents and employees of each and all of them, all damages covered by property insurance obtained by Owner, if any, except such rights as they may have to the proceeds of such insurance. If applicable, Design-Builder and Owner shall, where appropriate, require similar waivers of subrogation from Owner's separate contractors, Design Consultants and Subcontractors and shall require each of them to include similar waivers in their contracts. If applicable, these waivers of subrogation shall not contain any restriction or limitation that will impair the full and complete extent of its applicability to any person or entity unless agreed to in writing prior to the execution of this Agreement.

5.4 Bonds and Other Performance Security.

5.4.1 If Owner requires Design-Builder to obtain performance and labor and material payment bonds, or other forms of performance security, the amount, form and other conditions of such security shall be as set forth in the Agreement.

5.4.2 All bonds furnished by Design-Builder shall be in a form satisfactory to Owner. The surety shall be a company qualified and registered to conduct business in the state in which the Project is located.

Article 6

Payment

6.1 INTENTIONALLY DELETED.

6.2 Monthly Progress Payments.

6.2.1 On or before the date established in the Agreement, Design-Builder shall submit for Owner's review and approval its Application for Payment requesting payment for all Work performed as of the date of the Application for Payment. The Application for Payment shall be accompanied by all supporting documentation required by the Contract Documents and/or established at the meeting required by Section 2.1.4 hereof.

6.2.2 The Application for Payment may request payment for equipment and materials not yet incorporated into the Project, provided that (i) Owner is satisfied that the equipment and materials are suitably stored at either the Site or another acceptable location, (ii) the equipment and materials are protected by suitable insurance and (iii) upon payment, Owner will receive the equipment and materials free and clear of all liens and encumbrances.

6.2.3 All discounts offered by Subcontractor, Sub-Subcontractors and suppliers to Design-Builder for early payment shall accrue one hundred percent to Design-Builder to the extent Design-

Builder advances payment. Unless Owner advances payment to Design-Builder specifically to receive the discount, Design-Builder may include in its Application for Payment the full undiscounted cost of the item for which payment is sought.

6.2.4 The Application for Payment shall constitute Design-Builder's representation that the Work described herein has been performed consistent with the Contract Documents, has progressed to the point indicated in the Application for Payment, and that title to all Work will pass to Owner free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the Work into the Project, or upon Design-Builder's receipt of payment, whichever occurs earlier.

6.3 Withholding of Payments.

6.3.1 On or before the date established in the Agreement, Owner shall pay Design-Builder all amounts properly due. If Owner determines that Design-Builder is not entitled to all or part of an Application for Payment as a result of Design-Builder's failure to meet its obligations hereunder, including, without limitation, for any of the foregoing reasons:

1. defective Work not remedied;
2. third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Design-Builder;
3. failure of the Design-Builder to make payments properly to SubDesign-Builders or for labor, materials or equipment;
4. reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;
5. damage caused by the Design-Builder to the Owner or a separate contractor of the Owner; or
6. repeated failure to carry out the Work in accordance with the Contract Documents.

Owner it will notify Design-Builder in writing at least five (5) days prior to the date payment is due. The notice shall indicate the specific amounts Owner intends to withhold, the reasons and contractual basis for the withholding, and the specific measures Design-Builder must take to rectify Owner's concerns. Design-Builder and Owner will attempt to resolve Owner's concerns prior to the date payment is due. If the parties cannot resolve such concerns, Design-Builder may pursue its rights under the Contract Documents, including those under Article 10 hereof.

6.3.2 Notwithstanding anything to the contrary contained in the Contract Document, the Owner may withhold a portion of any payment to the Design-Builder for the reasons listed above, if and for so long as the Design-Builder fails to perform, in any material respect, any of its obligations hereunder or otherwise is in default under any of the Contract Documents; provided, however, that any such holdback shall be limited to an amount sufficient in the reasonable opinion of the Owner to cure any such default or failure of performance by the Design-Builder. When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

6.3.3 Notwithstanding anything to the contrary in the Contract Documents, Owner shall pay Design-Builder all undisputed amounts in an Application for Payment within the times required by the Agreement.

6.4 Right to Stop Work and Interest.

6.4.1 If Owner fails to pay timely Design-Builder any amount that becomes due, Design-Builder, in addition to all other remedies provided in the Contract Documents, may stop Work pursuant to Section 11.3 hereof. All payments due and unpaid shall bear interest at the rate set forth in the Agreement.

6.5 Design-Builder's Payment Obligations.

6.5.1 Design-Builder will pay Design Consultants and Subcontractors, in accordance with its

contractual obligations to such parties, all the amounts Design-Builder has received from Owner on account of their work. Design-Builder will impose similar requirements on Design Consultants and Subcontractors to pay those parties with whom they have contracted. Design-Builder will indemnify and defend Owner against any claims for payment and mechanic's liens as set forth in Section 7.3 hereof.

6.6 Substantial Completion.

6.6.1 Design-Builder shall notify Owner when it believes the Work, or to the extent permitted in the Contract Documents, a portion of the Work, is Substantially Complete. Within five (5) days of Owner's receipt of Design-Builder's notice, Owner and Design-Builder will jointly inspect such Work to verify that it is Substantially Complete in accordance with the requirements of the Contract Documents. If such Work is Substantially Complete, Owner shall prepare and issue a Certificate of Substantial Completion that will set forth (i) the date of Substantial Completion of the Work or portion thereof, (ii) the remaining items of Work that have to be completed before final payment, (iii) provisions (to the extent not already provided in the Contract Documents) establishing Owner's and Design-Builder's responsibility for the Project's security, maintenance, utilities and insurance pending final payment, and (iv) an acknowledgment that warranties commence to run on the date of Substantial Completion, except as may otherwise be noted in the Certificate of Substantial Completion.

6.6.2 Upon Substantial Completion of the entire Work or, if applicable, any portion of the Work, Owner shall release to Design-Builder all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less an amount equal to the reasonable value of all remaining or incomplete items of Work as noted in the Certificate of Substantial Completion.

6.6.3 Owner, at its option, may use a portion of the Work which has been determined to be Substantially Complete, provided, however, that (i) a Certificate of Substantial Completion has been issued for the portion of Work addressing the items set forth in Section 6.6.1 above, (ii) Design-Builder and Owner have obtained the consent of their sureties and insurers, and to the extent applicable, the appropriate government authorities having jurisdiction over the Project, and (iii) Owner and Design-Builder agree that Owner's use or occupancy will not interfere with Design-Builder's completion of the remaining Work.

6.7 Final Payment.

6.7.1 After receipt of a Final Application for Payment from Design-Builder, Owner shall make final payment by the time required in the Agreement, provided that Design-Builder has achieved Final Completion.

6.7.2 At the time of submission of its Final Application for Payment, Design-Builder shall provide the following information:

6.7.2.1 An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect Owner's interests;

6.7.2.2 A general release executed by Design-Builder waiving, upon receipt of final payment by Design-Builder, all claims, except those claims previously made in writing to Owner and remaining unsettled at the time of final payment;

6.7.2.3 Consent of Design-Builder's surety, if any, to final payment;

6.7.2.4 All operating manuals, warranties and other deliverables required by the Contract Documents; and

6.7.2.5 Certificates of insurance confirming that required coverages will remain in effect

consistent with the requirements of the Contract Documents.

6.7.3 Upon making final payment, Owner waives all claims against Design-Builder except claims relating to (i) Design-Builder's failure to satisfy its payment obligations, if such failure affects Owner's interests, (ii) Design-Builder's failure to complete the Work consistent with the Contract Documents, including defects appearing after Substantial Completion and (iii) the terms of any special warranties required by the Contract Documents.

6.7.4 Deficiencies in the Work discovered after Substantial Completion, whether or not such deficiencies would have been included on the Punch List if discovered earlier, shall be deemed warranty Work. Such deficiencies shall be corrected by Design-Builder under Sections 2.9 and 2.10 herein, and shall not be a reason to withhold final payment from Design-Builder, provided, however, that Owner shall be entitled to withhold from the Final Payment the reasonable value of completion of such deficient work until such work is completed.

Article 7

Indemnification

7.1 Patent and Copyright Infringement.

7.1.1 Design-Builder shall defend any action or proceeding brought against Owner based on any claim that the Work, or any part thereof, or the operation or use of the Work or any part thereof, constitutes infringement of any United States patent or copyright, now or hereafter issued. Owner shall give prompt written notice to Design-Builder of any such action or proceeding and will reasonably provide authority, information and assistance in the defense of same. Design-Builder shall indemnify and hold harmless Owner from and against all damages and costs, including but not limited to attorneys' fees and expenses awarded against Owner or Design-Builder in any such action or proceeding. Design-Builder agrees to keep Owner informed of all developments in the defense of such actions.

7.1.2 If Owner is enjoined from the operation or use of the Work, or any part thereof, as the result of any patent or copyright suit, claim, or proceeding, Design-Builder shall at its sole expense take reasonable steps to procure the right to operate or use the Work. If Design-Builder cannot so procure such right within a reasonable time, Design-Builder shall promptly, at Design-Builder's option and at Design-Builder's expense, (i) modify the Work so as to avoid infringement of any such patent or copyright or (ii) replace said Work with Work that does not infringe or violate any such patent or copyright.

7.1.3 Sections 7.1.1 and 7.1.2 above shall not be applicable to any suit, claim or proceeding based on infringement or violation of a patent or copyright (i) relating solely to a particular process or product of a particular manufacturer specified by Owner and not offered or recommended by Design-Builder to Owner or (ii) arising from modifications to the Work by Owner or its agents after acceptance of the Work. If the suit, claim or proceeding is based upon events set forth in the preceding sentence, Owner shall defend, indemnify and hold harmless Design-Builder to the same extent Design-Builder is obligated to defend, indemnify and hold harmless Owner in Section 7.1.1 above.

7.1.4 The obligations set forth in this Section 7.1 shall constitute the sole agreement between the parties relating to liability for infringement of violation of any patent or copyright.

7.2 Tax Claim Indemnification.

7.2.1 If, in accordance with Owner's direction, an exemption for all or part of the Work is claimed for taxes, Owner shall indemnify, defend and hold harmless Design-Builder from and against any

liability, penalty, interest, fine, tax assessment, attorneys' fees or other expenses or costs incurred by Design-Builder as a result of any action taken by Design-Builder in accordance with Owner's directive. Owner shall furnish Design-Builder with any applicable tax exemption certificates necessary to obtain such exemption, upon which Design-Builder may rely.

7.3 Payment Claim Indemnification.

7.3.1 Provided that Owner is not in breach of its contractual obligation to make payments to Design-Builder for the Work, Design-Builder shall indemnify, defend and hold harmless Owner, Ridge Winkler Midstream LLC and affiliates from any claims or mechanic's liens brought against Owner or against the Project as a result of the failure of Design-Builder, or those for whose acts it is responsible, to pay for any services, materials, labor, equipment, taxes or other items or obligations furnished or incurred for or in connection with the Work. Within three (3) days of receiving written notice from Owner that such a claim or mechanic's lien has been filed, Design-Builder shall commence to take the steps necessary to discharge said claim or lien, including, if necessary, the furnishing of a mechanic's lien bond. If Design-Builder fails to do so, Owner will have the right to discharge the claim or lien and hold Design-Builder liable for costs and expenses incurred, including attorneys' fees.

7.4 Design-Builder's General Indemnification.

7.4.1 Design-Builder, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Owner, its officers, directors, and employees, Ridge Winkler Midstream LLC and affiliates from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) to the extent resulting from the negligent acts or omissions of Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

7.4.2 If an employee of Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable has a claim against Owner, its officers, directors, employees, or agents, Design-Builder's indemnity obligation set forth in Section 7.4.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Design-Builder, Design Consultants, Subcontractors, or other entity under any employee benefit acts, including workers' compensation or disability acts.

7.5 Owner's General Indemnification.

7.5.1 Owner, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Design-Builder and any of Design-Builder's officers, directors, and employees, from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) to the extent resulting from the negligent acts or omissions of Owner's separate contractors or anyone for whose acts any of them may be liable, but excluding Design-Builder and anyone acting under Design-Builder.

Article 8

Time

8.1 Obligation to Achieve the Contract Times.

8.1.1 Design-Builder agrees that it will commence performance of the Work and achieve the Contract Time(s) in accordance with Article 5 of the Agreement.

8.2 Delays to the Work.

8.2.1 If Design-Builder is delayed in the performance of the critical path of the Work due to acts, omissions, conditions, events, or circumstances beyond its control and due to no fault of its own or those for whom Design-Builder is responsible, the Contract Time(s) for performance shall be reasonably extended by Change Order. By way of example, events that will entitle Design-Builder to an extension of the Contract Time(s) include acts or omissions of Owner or anyone under Owner's control (including separate contractors), changes in the Work, Differing Site Conditions, Hazardous Conditions, and Force Majeure Events.

8.2.2 In addition to Design-Builder's right to a time extension for those events set forth in Section 8.2.1 above, Design-Builder shall also be entitled to an appropriate adjustment of the Contract Price provided, however, that the Contract Price shall not be adjusted for Force Majeure Events unless otherwise provided in the Agreement.

Article 9

Changes to the Contract Price and Time

9.1 Change Orders.

9.1.1 A Change Order is a written instrument issued after execution of the Agreement signed by Owner and Design-Builder, stating their agreement upon all of the following:

9.1.1.1 The scope of the change in the Work;

9.1.1.2 The amount of the adjustment to the Contract Price; and

9.1.1.3 The extent of the adjustment to the Contract Time(s).

9.1.2 All changes in the Work authorized by applicable Change Order shall be performed under the applicable conditions of the Contract Documents. Owner and Design-Builder shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for such changes.

9.1.3 If Owner requests a proposal for a change in the Work from Design-Builder and subsequently elects not to proceed with the change, a Change Order shall be issued to reimburse Design-Builder for reasonable costs incurred for estimating services, design services and services involved in the preparation of proposed revisions to the Contract Documents.

9.2 Work Change Directives.

9.2.1 A Work Change Directive is a written order prepared and signed by Owner directing a change in the Work prior to agreement on an adjustment in the Contract Price and/or the Contract Time(s).

9.2.2 Owner and Design-Builder shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for the Work Change Directive. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the agreement.

9.3 Minor Changes in the Work.

9.3.1 Minor changes in the Work do not involve an adjustment in the Contract Price and/or Contract Time(s) and do not materially and adversely affect the Work, including the design, quality,

performance and workmanship required by the Contract Documents. Design-Builder may make minor changes in the Work consistent with the intent of the Contract Documents, provided, however, that Design-Builder shall promptly inform Owner, in writing, of any such changes and record such changes on the documents maintained by Design-Builder.

9.4 Contract Price Adjustments.

9.4.1 The increase or decrease in Contract Price resulting from a change in the Work shall be determined by one or more of the following methods:

9.4.1.1 Unit prices set forth in the Agreement or as subsequently agreed to between the parties;

9.4.1.2 A mutually accepted lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by Owner;

9.4.1.3 Costs, fees and any other markups set forth in the Agreement; or

9.4.1.4 If an increase or decrease cannot be agreed to as set forth in items 9.4.1.1 through 9.4.1.3 above and Owner issues a Work Change Directive, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in the Agreement.

9.4.2 If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices will cause substantial inequity to Owner or Design-Builder because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.

9.4.3 If Owner and Design-Builder disagree upon whether Design-Builder is entitled to be paid for any services required by Owner, or if there are any other disagreements over the scope of Work or proposed changes to the Work, Owner and Design-Builder shall resolve the disagreement pursuant to Article 10 hereof. As part of the negotiation process, Design-Builder shall furnish Owner with a good faith estimate of the costs to perform the disputed services in accordance with Owner's interpretations. If the parties are unable to agree and Owner expects Design-Builder to perform the services in accordance with Owner's interpretations, Design-Builder shall proceed to perform the disputed services, conditioned upon Owner issuing a written order to Design-Builder (i) directing Design-Builder to proceed and (ii) specifying Owner's interpretation of the services that are to be performed. If this occurs, Design-Builder shall be entitled to submit in its Applications for Payment an amount equal to fifty percent (50%) of its reasonable estimated direct cost to perform the services, and Owner agrees to pay such amounts, with the express understanding that (i) such payment by Owner does not prejudice Owner's right to argue that it has no responsibility to pay for such services and (ii) receipt of such payment by Design-Builder does not prejudice Design-Builder's right to seek full payment of the disputed services if Owner's order is deemed to be a change to the Work.

9.4.4 Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work which is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum and the construction schedule. In the event a Change Order increases the Contract Sum, Design-Builder shall include the Work covered by such Change Orders in Applications for Payment as if such Work were originally part of the Contract Documents.

9.5 Emergencies.

9.5.1 In any emergency affecting the safety of persons and/or property, Design-Builder shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price

and/or Contract Time(s) on account of emergency work shall be determined as provided in this Article 9.

Article 10

Contract Adjustments and Disputes

10.1 Requests for Contract Adjustments and Relief.

10.1.1 If either Design-Builder or Owner believes that it is entitled to relief against the other for any event arising out of or related to the Work or Project, such party shall provide written notice to the other party of the basis for its claim for relief. Such notice shall, if possible, be made prior to incurring any cost or expense and in accordance with any specific notice requirements contained in applicable sections of these General Conditions of Contract. In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed twenty-one (21) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later. Such notice shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request.

10.2 Dispute Avoidance and Resolution.

10.2.1 The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, Design-Builder and Owner each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work.

10.2.2 Design-Builder and Owner will first attempt to resolve disputes or disagreements at the field level through discussions between Design-Builder's Representative and Owner's Representative which shall conclude within fourteen (14) days of the written notice provided for in Section 10.1.1 unless the Owner and Design-Builder mutually agree otherwise.

10.2.3 If a dispute or disagreement cannot be resolved through Design-Builder's Representative and Owner's Representative, Design-Builder's Senior Representative and Owner's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than thirty (30) days after such a request is made, to attempt to resolve such dispute or disagreement. Five (5) days prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute or disagreement.

10.2.4 If after meeting the Senior Representatives determine that the dispute or disagreement cannot be resolved on terms satisfactory to both parties, the parties shall submit within thirty (30) days of the conclusion of the meeting of Senior Representatives the dispute or disagreement to non-binding mediation. The mediation shall be conducted by a mutually agreeable impartial mediator, or if the parties cannot so agree, a mediator designated by the American Arbitration Association ("AAA") pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator. Unless otherwise mutually agreed by the Owner and Design-Builder and consistent with the mediator's schedule, the mediation shall commence within ninety (90) days of the submission of the dispute to mediation.

10.3 Arbitration.

10.3.1 Any claims, disputes or controversies between the parties arising out of or relating to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures set forth in Section 10.2 above, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the AAA then in effect, unless the parties mutually agree otherwise.

10.3.2 The award of the arbitrator(s) shall be final and binding upon the parties without the right of appeal to the courts. Judgment may be entered upon it in accordance with applicable law by any court having jurisdiction thereof.

10.3.3 Design-Builder and Owner expressly agree that any arbitration pursuant to this Section 10.3 may be joined or consolidated with any arbitration involving any other person or entity (i) necessary to resolve the claim, dispute or controversy, or (ii) substantially involved in or affected by such claim, dispute or controversy. Both Design-Builder and Owner will include appropriate provisions in all contracts they execute with other parties in connection with the Project to require such joinder or consolidation.

10.3.4 The prevailing party in any arbitration, or any other final, binding dispute proceeding upon which the parties may agree, shall be entitled to recover from the other party reasonable attorneys' fees and expenses incurred by the prevailing party.

10.4 Duty to Continue Performance.

10.4.1 Unless provided to the contrary in the Contract Documents, Design-Builder shall continue to perform the Work and Owner shall continue to satisfy its payment obligations to Design-Builder, pending the final resolution of any dispute or disagreement between Design-Builder and Owner.

10.5 CONSEQUENTIAL DAMAGES.

10.5.1 NOTWITHSTANDING ANYTHING HEREIN TO THE CONTRARY (EXCEPT AS SET FORTH IN SECTION 10.5.2 BELOW), NEITHER DESIGN-BUILDER NOR OWNER SHALL BE LIABLE TO THE OTHER FOR ANY CONSEQUENTIAL LOSSES OR DAMAGES, WHETHER ARISING IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, INCLUDING BUT NOT LIMITED TO LOSSES OF USE, PROFITS, BUSINESS, REPUTATION OR FINANCING.

10.5.2 The consequential damages limitation set forth in Section 10.5.1 above is not intended to affect the payment of liquidated damages or lost early completion bonus, if any, set forth in Article 5 of the Agreement, which both parties recognize has been established, in part, to reimburse Owner or reward Design-Builder for some damages that might otherwise be deemed to be consequential.

Article 11

Stop Work and Termination for Cause

11.1 Owner's Right to Stop Work.

11.1.1 Owner may, without cause and for its convenience, order Design-Builder in writing to stop and suspend the Work. Such suspension shall not exceed sixty (60) consecutive days or aggregate more than ninety (90) days during the duration of the Project.

11.1.2 Design-Builder is entitled to seek an adjustment of the Contract Price and/or Contract Time(s) if its cost or time to perform the Work has been adversely impacted by any suspension of

stoppage of the Work by Owner.

11.2 Owner's Right to Perform and Terminate for Cause.

11.2.1 If Design-Builder persistently fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, Design Consultants or Subcontractors, (v) prosecute the Work with promptness and diligence to ensure that the Work is completed by the Contract Time(s), as such times may be adjusted, or (vi) perform material obligations under the Contract Documents, then Owner, in addition to any other rights and remedies provided in the Contract Documents or by law, shall have the rights set forth in Sections 11.2.2 and 11.2.3 below.

11.2.2 Upon the occurrence of an event set forth in Section 11.2.1 above, Owner may provide written notice to Design-Builder that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Design-Builder's receipt of such notice. If Design-Builder fails to cure, or reasonably commence to cure, such problem, then Owner may give a second written notice to Design-Builder of its intent to terminate within an additional seven (7) day period. If Design-Builder, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Owner may declare the Agreement terminated for default by providing written notice to Design-Builder of such declaration.

11.2.3 Upon declaring the Agreement terminated pursuant to Section 11.2.2 above, Owner may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which Design-Builder hereby transfers, assigns and sets over to Owner for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items. In the event of such termination, Design-Builder shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, if the unpaid balance of the Contract Price exceeds the cost and expense incurred by Owner in completing the Work, such excess shall be paid by Owner to Design-Builder. Notwithstanding the preceding sentence, if the Agreement establishes a Guaranteed Maximum Price, Design-Builder will only be entitled to be paid for Work performed prior to its default. If Owner's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Design-Builder shall be obligated to pay the difference to Owner. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by Owner in connection with the reprocurement and defense of claims arising from Design-Builder's default, subject to the waiver of consequential damages set forth in Section 10.5 hereof.

11.2.4 If Owner improperly terminates the Agreement for cause, the termination for cause will be converted to a termination for convenience in accordance with the provisions of Article 8 of the Agreement.

11.3 Design-Builder's Right to Stop Work.

11.3.1 Design-Builder may, in addition to any other rights afforded under the Contract Documents or at law, stop the Work for the following reasons:

11.3.1.1 Owner's failure to provide financial assurances as required under Section 3.3 hereof; or

11.3.1.2 Owner's failure to pay amounts properly due under Design-Builder's Application for Payment.

11.3.2 Should any of the events set forth in Section 11.3.1 above occur, Design-Builder has the right to provide Owner with written notice that Design-Builder will stop the Work unless said event

is cured within seven (7) days from Owner's receipt of Design-Builder's notice. If Owner does not cure the problem within such seven (7) day period, Design-Builder may stop the Work. In such case, Design-Builder shall be entitled to make a claim for adjustment to the Contract Price and Contract Time(s) to the extent it has been adversely impacted by such stoppage.

11.4 Design-Builder's Right to Terminate for Cause.

11.4.1 Design-Builder, in addition to any other rights and remedies provided in the Contract Documents or by law, may terminate the Agreement for cause for the following reasons:

11.4.1.1 The Work has been stopped for sixty (60) consecutive days, or more than ninety (90) days during the duration of the Project, because of court order, any government authority having jurisdiction over the Work, or orders by Owner under Section 11.1.1 hereof, provided that such stoppages are not due to the acts or omissions of Design-Builder or anyone for whose acts Design-Builder may be responsible.

11.4.1.2 Owner's failure to provide Design-Builder with any information, permits or approvals that are Owner's responsibility under the Contract Documents which result in the Work being stopped for sixty (60) consecutive days, or more than ninety (90) days during the duration of the Project, even though Owner has not ordered Design-Builder in writing to stop and suspend the Work pursuant to Section 11.1.1 hereof.

11.4.1.3 Owner's failure to cure the problems set forth in Section 11.3.1 above after Design-Builder has stopped the Work.

11.4.2 Upon the occurrence of an event set forth in Section 11.4.1 above, Design-Builder may provide written notice to Owner that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Owner's receipt of such notice. If Owner fails to cure, or reasonably commence to cure, such problem, then Design-Builder may give a second written notice to Owner of its intent to terminate within an additional seven (7) day period. If Owner, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Design-Builder may declare the Agreement terminated for default by providing written notice to Owner of such declaration. In such case, Design-Builder shall be entitled to recover in the same manner as if Owner had terminated the Agreement for its convenience under Article 8 of the Agreement.

11.5 Bankruptcy of Owner or Design-Builder.

11.5.1 If either Owner or Design-Builder institutes or has instituted against it a case under the United States Bankruptcy Code (such party being referred to as the "Bankrupt Party"), such event may impair or frustrate the Bankrupt Party's ability to perform its obligations under the Contract Documents. Accordingly, should such event occur:

11.5.1.1 The Bankrupt Party, its trustee or other successor, shall furnish, upon request of the non-Bankrupt Party, adequate assurance of the ability of the Bankrupt Party to perform all future material obligations under the Contract Documents, which assurances shall be provided within ten (10) days after receiving notice of the request; and

11.5.1.2 The Bankrupt Party shall file an appropriate action within the bankruptcy court to seek assumption or rejection of the Agreement within sixty (60) days of the institution of the bankruptcy filing and shall diligently prosecute such action.

If the Bankrupt Party fails to comply with its foregoing obligations, the non-Bankrupt Party shall be entitled to request the bankruptcy court to reject the Agreement, declare the Agreement terminated and pursue any other recourse available to the non-Bankrupt Party under this Article 11.

11.5.2 The rights and remedies under Section 11.5.1 above shall not be deemed to limit the ability of the non-Bankrupt Party to seek any other rights and remedies provided by the Contract Documents or by law, including its ability to seek relief from any automatic stays under the United States Bankruptcy Code or the right of Design-Builder to stop Work under any applicable provision of these General Conditions of Contract.

Article 12

Electronic Data

12.1 Electronic Data.

12.1.1 The parties recognize that Contract Documents, including drawings, specifications and three-dimensional modeling (such as Building Information Models) and other Work Product may be transmitted among Owner, Design-Builder and others in electronic media as an alternative to paper hard copies (collectively "Electronic Data").

12.2 Transmission of Electronic Data.

12.2.1 Owner and Design-Builder shall agree upon the software and the format for the transmission of Electronic Data. Each party shall be responsible for securing the legal rights to access the agreed-upon format, including, if necessary, obtaining appropriately licensed copies of the applicable software or electronic program to display, interpret and/or generate the Electronic Data.

12.2.2 Neither party makes any representations or warranties to the other with respect to the functionality of the software or computer program associated with the electronic transmission of Work Product. Unless specifically set forth in the Agreement, ownership of the Electronic Data does not include ownership of the software or computer program with which it is associated, transmitted, generated or interpreted.

12.2.3 By transmitting Work Product in electronic form, the transmitting party does not transfer or assign its rights in the Work Product. The rights in the Electronic Data shall be as set forth in Article 4 of the Agreement. Under no circumstances shall the transfer of ownership of Electronic Data be deemed to be a sale by the transmitting party of tangible goods.

12.3 Electronic Data Protocol.

12.3.1 The parties acknowledge that Electronic Data may be altered or corrupted, intentionally or otherwise, due to occurrences beyond their reasonable control or knowledge, including but not limited to compatibility issues with user software, manipulation by the recipient, errors in transcription or transmission, machine error, environmental factors, and operator error. Consequently, the parties understand that there is some level of increased risk in the use of Electronic Data for the communication of design and construction information and, in consideration of this, agree, and shall require their independent contractors, Subcontractors and Design Consultants to agree, to the following protocols, terms and conditions set forth in this Section 12.3.

12.3.2 Electronic Data will be transmitted in the format agreed upon in Section 12.2.1 above, including file conventions and document properties, unless prior arrangements are made in advance in writing.

12.3.3 The Electronic Data represents the information at a particular point in time and is subject to change. Therefore, the parties shall agree upon protocols for notification by the author to the recipient of any changes which may thereafter be made to the Electronic Data, which protocol shall

also address the duty, if any, to update such information, data or other information contained in the electronic media if such information changes prior to Final Completion of the Project.

12.3.4 The transmitting party specifically disclaims all warranties, expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with respect to the media transmitting the Electronic Data. However, transmission of the Electronic Data via electronic means shall not invalidate or negate any duties pursuant to the applicable standard of care with respect to the creation of the Electronic Data, unless such data is materially changed or altered after it is transmitted to the receiving party, and the transmitting party did not participate in such change or alteration.

Article 13

Miscellaneous

13.1 Confidential Information.

13.1.1 Confidential Information is defined as information which is determined by the transmitting party to be of a confidential or proprietary nature and: (i) the transmitting party identifies as either confidential or proprietary; (ii) the transmitting party takes steps to maintain the confidential or proprietary nature of the information; and (iii) the document is not otherwise available in or considered to be in the public domain. The receiving party agrees to maintain the confidentiality of the Confidential Information and agrees to use the Confidential Information solely in connection with the Project.

13.2 Assignment.

13.2.1 Neither Design-Builder nor Owner shall, without the written consent of the other assign, transfer or sublet any portion or part of the Work or the obligations required by the Contract Documents.

13.3 Successorship.

13.3.1 Design-Builder and Owner intend that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.

13.4 Governing Law.

13.4.1 The Agreement and all Contract Documents shall be governed by the laws of the place of the Project, without giving effect to its conflict of law principles.

13.5 Severability.

13.5.1 If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal, or otherwise unenforceable pursuant to any applicable Legal Requirements, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

13.6 No Waiver.

13.6.1 The failure of either Design-Builder or Owner to insist, in any one or more instances, on the performance of any of the obligations required by the other under the Contract Documents shall

not be construed as a waiver or relinquishment of such obligation or right with respect to future performance.

13.7 Headings.

13.7.1 The headings used in these General Conditions of Contract, or any other Contract Document, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

13.8 Notice.

13.8.1 Whenever the Contract Documents require that notice be provided to the other party, notice will be deemed to have been validly given (i) if delivered in person to the individual intended to receive such notice, (ii) four (4) days after being sent by registered or certified mail, postage prepaid to the address indicated in the Agreement, or (iii) if transmitted by facsimile, by the time stated in a machine generated confirmation that notice was received at the facsimile number of the intended recipient.

13.9 Amendments.

13.9.1 The Contract Documents may not be changed, altered, or amended in any way except in writing signed by a duly authorized representative of each party.

13.10 Third Party Beneficiary.

13.10.1 Owner shall be deemed to be a third party beneficiary of each subcontract and may, if Owner elects; require (following Owner's termination of this Agreement for Design-Builder's default, as provided herein), that the Design-Builder's subcontractor ("SubDesign-Builder") perform all of the then unperformed duties and obligations of such SubDesign-Builder thereunder for the benefit of Owner (rather than Design-Builder); however, in the event that Owner requires any such performance by a SubDesign-Builder for the direct benefit of Owner, then Owner shall be bound and obligated to pay such SubDesign-Builder for all work done by such SubDesign-Builder (i) to date (to-wit: the reasonable value of that portion of the subcontract performed by such SubDesign-Builder) and (ii) subsequent to the date that Owner elects to invoke such rights. Owners' liability in this connection, however, is not to exceed the amount obtained by subtracting from the subcontract price the total of all sums paid by Design-Builder to SubDesign-Builder prior to Owner's invoking its right hereunder with respect to direct performance by SubDesign-Builder for Owner. In the event that Owner elects to invoke such rights, Owner shall give written notice of such election to Design-Builder and such SubDesign-Builders.

13.11 Non-Conforming Work.

13.11.1 When any non-conforming work is found or confirmed by the Owner, the entire area of Work involved shall be corrected unless the Design-Builder can completely define the limits of the non-conforming work. Additional testing, sampling or inspecting arising from non-conforming work shall be at the Design-Builder's expense. Design-Builder shall employ the Owner's independent testing laboratory, or a mutually satisfactory independent testing laboratory if such services are required. All corrected work shall be re-tested at the Design-Builder's expense. Extra engineering services required by Design-Builder to analyze non-conforming work shall be paid for by Design-Builder.

13.12 Priority of Documents.

13.12.1 In the event of any inconsistency between the provisions of this instrument and the terms and conditions of any of the other Contract Documents, the provisions of this instrument shall control. In connection therewith, the most recently issued document takes precedence over

previous issues of the same document. The order of precedence is as follows with highest authority listed as “01”.

01 Modifications to This Agreement;
02 This Agreement;
03 Modifications to the General Conditions;
04 General Conditions; and
05 Drawings and Specifications

13.13 Inspections.

13.13.1 Owner shall have the right to appoint at any time or from time to time one or more engineers, Owner or other representatives to inspect the Work on behalf of Owner, except as otherwise provided elsewhere in the Contract Documents, all costs, expenses and fees of such additional inspections shall be borne and paid by Owner.

David Howell
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Houston, Texas 77057
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EXPERIENCE

1987-Present Pipeline Equities, Houston, Texas

Bought, sold, evaluated and appraised operating crude, natural gas and product pipelines for company account. Acted as agent for Exxon, Occidental, Texaco, Arco and Koch and others. Engaged in the purchase and deconstruction [removal] of 15 million feet of pipelines and associated gas plants, refineries, gathering systems and crude oil terminals. Responsible for overall projects including procurement, inspection, evaluation, hiring of supervisory personnel, environmental issues (including asbestos issues and ACM or Asbestos Containing Materials), compliance, landowner relations, and right-of-way issues as well as marketing in U. S. and exporting to China and India and other markets. Developed pipeline appraisal business encompassing throughput, pipe values, salvage, and the "forty factors" concept for valuating pipelines including transmission, trunk, main and gathering systems as well as easements. Active in consulting in litigation for pipeline companies, land owners and government agencies in North America regarding issues of easements and right of way contracts, pipeline safety, construction and deconstruction practices, environment concerns and the issues of abandonment of pipelines.

1983-1987 Tradex Tubulars, Houston, Texas and Anchorage, Alaska

Purchased surplus and used oilfield tubulars on North Slope and Kenai, Alaska. Refurbished and sold in the United States and Canada and other markets. Responsible for purchasing, plugging and abandoning depleted oil and gas wells for salvage in Texas and Louisiana for company account. Responsible for marketing resulting pipe and equipment.

1972-1983 Tradex Petroleum Services, Houston, Texas

Bought, sold, fabricated, unitized, and exported oilfield drilling and production equipment to contractors in U. S., South America, Central America, and Persian Gulf [Iran]. Packaged mud pumps and other components as well as complete drilling rig packages to customer specifications with combined new, used, and rebuilt equipment. Initiated and maintained extensive electronic database of worldwide petroleum industry.

1977 – 1979 Southwest Supply, Houston, Texas

Served as President and CEO of general-purpose oilfield pipe and supply with nine stores throughout South Texas, New Mexico and South Louisiana.

1973 – 1983 Tradex Publications, Houston, Texas

Published Tradex, a journal of used oilfield equipment, which was distributed throughout the world (15,000 copies.) Also published 30 titles of oilfield directories and technical manuals including Whole World Oil Directory, Alaska Petroleum and Industrial Directory, Texas Drilling Permits, Texas Petrodata Report and Southwest Petrodata Report via electronic publishing related database marketing.

1970-1973 Americana Petrochem, Houston, Texas

Construction and operation involving offshore production platforms. Working from base platforms and new construction for additional new adjacent platforms involving crude and natural gas hook ups for new oil and gas production. Additional research and development of oil spill dispersants and biodegradable chemicals for use on offshore drilling rigs and drill ships. Developed brands of "Deep Six Degreaser", "Rig Wash" and "Supergard" as biodegradable chemicals suitable and safe for offshore use.

1968 – 1970 Western Company of North America

City Sales and Technical Field Representative: downhole services. Responsibilities including extensive laboratory work testing new cementing techniques and formulas for ultra deep heat and pressure sensitive applications for offshore and onshore ultra deep oil and gas wells.

1964 – 1972 S.H. Howell Drilling Company, Alice, Texas

Partner in exploration, drilling, production, and work over in South Texas for company account.

EDUCATION

Texas A&M University – Kingsville, B.A. Political Science (International Relations)
University of Texas Petroleum Technology School; Pipeline Technology Certificate
Program majoring in petroleum technology, technical aspects of hydraulics and pipeline construction, coatings, transportation and distribution.

University of Texas Petex: Various certificate programs in oil and gas appraisal, oil and gas well log analysis, petroleum accounting methods, oil and gas well completion methods, well servicing procedures, natural gas processing, and oil and gas production.

Senior Right of Way Agent Designation, International Right of Way Association; completed twenty-one required courses in various right of way disciplines leading to SRWA (Senior Right of Way Agent) designation. Negotiation/Acquisition certification; International Right of Way Association; Environmental Certification, International Right of Way Association. Appraisal Certification, International Right of Way Association. Certification: Pipeline Appraisal Institute. Certification as Competent Supervisor and Contractor for Asbestos removal and Asbestos Containing Materials via NATEC.

Member; International Right of Way Association, Houston Pipeliners Association, Pipeline Appraisal Institute.

Academic programs in language, culture and foreign trade at:
Universidad Nacional Autonoma de Mexico, Mexico, D.F.; University of the Americas, Mexico D. F.; Inter-American University, Saltillo, Mexico; Cultura Lenguas (CLIC), Seville, Spain; Intensa (Language), San Jose, Costa Rica; Academia de Espanol, Quito, Ecuador

BOOKS AND ARTICLES

Methods for Determining the Values of Pipelines, Part I (September 2010, Pipeline & Gas Technology)
Methods for Determining the Values of Pipelines, Part II (October 2010, Pipeline & Gas Technology)
Proper Pipeline Valuation Requires Specialized Appraisal (May 24, 2010, Oil & Gas Journal
What is the Value of Your Pipeline? (May 2010, Pipeline & Gas Journal)
The Underground World of Pipeline Appraisal (May/June 2010, Right of Way Magazine)
Pipeline Operators Under using Potential Pipeline Rehabilitation (January 2010, Oil & Gas Journal)
Who Owns Abandoned Pipelines? (October 2009, Pipeline & Gas Journal)
The Art of Pipeline Recovery (January/February 2009, Right of Way Magazine)
The Search for Abandoned Pipelines (September/October 2007, Right of Way Magazine)
The Case for Pipeline Recycling (April 2010, Throughput Emag)
Deconstruction of Pipelines (July 2010, Throughput Emag)
Forty Factors for Pipeline Appraisal (August 2010, Throughput Emag)
Markets and Reuses for Recovered Pipelines, (September 2010, Throughput Emag)

Pipeline Recovery Manual, Second Edition 2010
Pipeline Appraisal Handbook, 2010
Pipeline Right of Way Handbook, 2011