GW – 028

Permit Modifications

2011

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, June 16, 2011 11:19 AM
To: 'Moore, Darrell'; Cobrain, Dave, NMENV
Cc: Monzeglio, Hope, NMENV
Subject: RE: NRS Detailed Area Piping Plan Drawings

Darrell:

The OCD is in receipt of the engineering pipeline drawings for the waste water system. The OCD approved the tank upgrades with conditions on May 3, 2011.

Based on the attached drawings, the new tanks appear to be: Tk-0829, Tk-836, Tk-49 (solvent extraction tank), Frac Tank (Dwg: 80-1-201-D-04), Tk-803, Tk-804, Tk-1, Tk-2, Tk-3, Tk-4, Tk-807,.....

Dwg: 80-1-201-D-02 depicts a 300 GALLON POLYMER MIX TANK, which must also meet the design and construction requirements of the permit.

OCD requests that Navajo provide the listing of all new tanks (which include Frac Tanks?) installed at the facility so the OCD can inspect the locations for compliance with the permit.

Thank you.

File: GW-028: "Inspections" and "Permit Modification" Thumbnails

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
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http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

From: Moore, Darrell [mailto:Darrell.Moore@hollycorp.com]
Sent: Wednesday, June 15, 2011 9:39 AM
To: Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV
Cc: Monzeglio, Hope, NMENV
Subject: FW: NRS Detailed Area Piping Plan Drawings

Carl, Dave and Hope

Attached, please find detailed piping and other drawings for our upgrade of our Waste Water System. We had sent you the drawings for the tanks for this system a few weeks ago.

From: Siwek, Janusz
Sent: Thursday, June 09, 2011 9:49 PM
To: Moore, Darrell
Cc: McKee, Michael; Meeks, Jimmy; Evans, Jason
Subject: FW: NRS Detailed Area Piping Plan Drawings

From: Holmes, Don P. [holmesdp@cdm.com]
Sent: Thursday, June 09, 2011 5:18 PM
To: Siwek, Janusz; Cline, Jim; Davis, Gary
Cc: Christiansen, John A.
Subject: NRS Detailed Area Piping Plan Drawings

Please find attached the 16 drawings noted above. These drawings are not complete, but do define where all the equipment is located and how about 85% of the piping is located.
These should be useful on your OCD permit request.

Lagenia, Please send an office transmittal to document this and post these drawing on the e-Room. Do not attach these drawings again to the official Transmittal.

Don P. Holmes, P.E.
Sr. Project Manager
CDM, Inc.
3050 Post Oak Blvd., Site 300
Houston, Texas 77056
direct (713) 423-7318
Cell (713) 208-6847

ATTACHMENT 2, January 2009

Navajo Refining Company

DISCHARGE PERMIT (GW-028)
NAVAJO REFINING COMPANY
PROPOSED TRACER LEAK TEST PROJECT

ARTESIA

Priority 1 — 2009

TANK ID	TYPICAL LIQUID STORED	TYPE	VOLUME (bbl)	YEAR BUILT	Last Integrity Test Date
T-106	Gasolines	IFR	24,800	<1971	2002
T-107	Gasolines	IFR	25,000	<1971	<1998
T-108	Gasolines	IFR	22,800	<1951	2002
T-109	Gasolines	IFR	22,300	<1971	2002
T-111	Gasolines	IFR	32,800	<1973	2002
T-124	Gasolines	IFR	8,200	1981	2002
T-12[illegible]	Gasolines	IFR	32,100	<1973	2004
T-415	Gasolines	VFR	10,800	<1973	2002
T-417	Gasolines	IFR	8,300	<1973	2002
T-117	Gasolines	EFR	14,000	1950	2005
T-421	Gasolines	EFR	53,000	1932	2005
T-402	Gasolines	EFR	53,000	<1983	2005
T-411	Gasolines	EFR	52,000	<1951	2001
T-412	Gasolines	EFR	52,000	<1951	2003
T-450	Gasolines	EFR	80,000	<1997	2003
15 Tanks					

Priority 2 — 2010

TANK ID	TYPICAL LIQUID STORED	TYPE	VOLUME (bbl)	YEAR BUILT	Last Integrity Test Date
T-111	Naphthas	IFR	9,100	<1973	2001
T-112	Naphthas	IFR	10,400	<1973	2000
T-56	Naphthas	IFR	13,800	<1973	1990
T-429	Crude Oil	IFR	108,000	1975	2007
T-427	Crude Oil	EFR	85,000	1975	2006
T-57	Naphthas	EFR	5,000	1981	1991
T-418	Distillates	VFR	19,500	<1973	2001
T-419	Distillates	VFR	10,500	<1973	2001
T-422	Distillates	VFR	10,400	<1973	2002
T-423	Distillates	VFR	10,500	<1970	2001
T-652	Sour Water	EFR	5,000	2002	2002 New
T-455	Water Drains	EFR	5,000	1997	2002
12 Tanks					

Priority 3 — 2011

TANK ID	TYPICAL LIQUID STORED	TYPE	VOLUME (bbl)	YEAR BUILT	Last Integrity Test Date
T-834	Distillates	EFR	40,000	<1967	2006
T-835	Distillates	EFR	55,000	<1971	2006
T-432	Distillates	VFR	55,000	<1972	2002
T-434	Distillates	VFR	78,400	<1979	2006
T-55	Distillates	VFR	11,300	<1979	2007
T-58	Distillates	VFR	5,300	<1973	2007
T-414	Distillates	VFR	85,250	2005	2005 New
T-838	Distillates	VFR	35,400	1977	2006
T-413	Distillates	IFR	21,500	1960	2004
T-61	Light Cycle Oil	VFR	13,500	<1973	2009
10 Tanks					

Priority 4 — 2012

TANK ID	TYPICAL LIQUID STORED	TYPE	VOLUME (bbl)	YEAR BUILT	Last Integrity Test Date
T-400	Gas Oils	VFR	96,300	1983	2003
T-433	Gas Oils	VFR	79,900	<1973	2003
T-438	Gas Oils	VFR	54,200	1978	2005
T-59	Carbon Black Oil	VFR	5,100	<1973	2006
T-63	Carbon Black Oil	VFR	13,700	<1973	2005
T-65	Carbon Black Oil	VFR	96,300	1999	2005
T-75	Carbon Black Oil	VFR	18,900	2003	2003 New
T-836	Waste Water	VFR	30,500	1999	1999 New
T-801	Waste Water	VFR	54,200	1967	1993
T-42[illegible]	Gas Oils	VFR	25,100	<1973	Out of Service
10 Tanks					

LOVINGTON

Priority 1 — 2013

TANK ID	TYPICAL LIQUID STORED	TYPE	VOLUME (bbl)	YEAR BUILT	Last Integrity Test Date
T-1018	Raw Naphtha	EFR	73,000	1973	1995
T-1229	Straight Run Gasoline	EFR	35,000	1973	2002
T-1201A	Crude Oil	EFR	154,500	1973	2005
T-1201B	Crude Oil	EFR	154,500	1973	2008
T-1203A	Raw Diesel	VFR	30,000	1973	1991
T-1203B	Raw Diesel	VFR	30,000	1973	1991
T-1204	Raw Diesel	VFR	43,350	1973	1981
T-1202	Crude Oil	EFR	108,130	1973	2002
T-1214	Heavy Slop	VFR	20,000	1980	2006
T-1215	Heavy Slop	VFR	20,000	1980	2002
T-1207	Light Slop Oil	IFR	10,800	1973	2005

Priority 2

TANK ID	TYPICAL LIQUID STORED	TYPE	VOLUME (bbl)	YEAR BUILT	Last Integrity Test Date
T-1[illegible]2A	Raw Kerosene	EFR	25,000	1973	1991
T-1209	Atmos Gas Oil	EFR	33,800	1973	2008
T-104A	Raw Kerosene	VFR	15,000	1973	1991
T-104B	Atmos Gas Oil	VFR	15,000	1973	1991
T-1205	Heavy Vacuum Gas Oil	VFR	30,737	1973	2005
T-1206	Atmos Gas Oil	VFR	97,138	1973	2002
T-1208	Light Slop Oil	EFR	18,000	1973	Out of Service
T-1210	Waste Water	VFR	97,500	1973	New 2005
T-1211	Waste Water	VFR	97,000	1973	2007
T-1298	Wastewater	IFR	5,380	1973	2004
21 Tanks					

Chavez, Carl J, EMNRD

From: Moore, Darrell [Darrell.Moore@hollycorp.com]
Sent: Wednesday, June 15, 2011 9:39 AM
To: Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV
Cc: Monzeglio, Hope, NMENV
Subject: FW: NRS Detailed Area Piping Plan Drawings
Attachments: 80-200-D-01.pdf; 80-I-201-D-15.pdf; 80-I-201-D-01.pdf; 80-I-201-D-02.pdf; 80-I-201-D-03.pdf; 80-I-201-D-04.pdf; 80-I-201-D-05.pdf; 80-I-201-D-06.pdf; 80-I-201-D-07.pdf; 80-I-201-D-08.pdf; 80-I-201-D-09.pdf; 80-I-201-D-10.pdf; 80-I-201-D-11.pdf; 80-I-201-D-12.pdf; 80-I-201-D-13.pdf; 80-I-201-D-14.pdf

Carl, Dave and Hope

Attached, please find detailed piping and other drawings for our upgrade of our Waste Water System. We had sent you the drawings for the tanks for this system a few weeks ago.

From: Siwek, Janusz
Sent: Thursday, June 09, 2011 9:49 PM
To: Moore, Darrell
Cc: McKee, Michael; Meeks, Jimmy; Evans, Jason
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Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, May 03, 2011 1:57 PM
To: 'Moore, Darrell'; Monzeglio, Hope, NMENV
Cc: Lackey, Johnny; Siwek, Janusz; Davis, Gary; Dade, Randy, EMNRD
Subject: RE: Navajo Refining Company, Artesia Refinery (GW-028) Tank Drawings for Waste Water Tank Upgrades

Darrell et al.:

Good afternoon.

Approved with the conditions specified in the OCD Discharge Permit provided below. Navajo Refining Company shall provide an updated spreadsheet with tank specifications, info., etc., and tank diagram of tanks with identification numbers for the tank integrity program within 3 months of tank construction.

Please provide at least 72 hours advance notice of tank construction schedule so the agencies may witness the construction of the liner system, concrete ring, leak detection system, etc. You may recall the tank ring that developed cracks because the tank was not centered in the middle of the concrete ring; consequently, I'm sure the construction will ensure that the tank circumference is centered on the tank ring for the construction. Also, the OCD observes that liner specifications were not provided in the engineering diagrams. The discharge permit requires LLDPE; however, if HDPE is used, in order to overcome its stress crack nature, the mil thickness must be increased to a minimum of 60-mil. The OCD expects the liner to be properly tied into the tank ring structure beneath the tank and the liner seams to be properly tested to ensure a good seal exists during and after construction.

Per Section 9 of the Discharge Permit:

9. Above Ground Tanks:

All new and existing above ground tanks containing chemicals must be placed or retrofitted over an impermeable pad (40-mil LLDPE reinforced liner with leak detection system) or liner system within a bermed secondary containment area approved by the OCD. The bermed areas shall be constructed to contain a volume of at least one and one-third (1+1/3) greater than the total volume of the largest tank and/or all interconnected tanks within a bermed containment area. Alternative secondary containment designs must be approved by the OCD.

The owner/operator shall submit a spreadsheet or table identifying all tanks with a work schedule to address this provision (Tank ID #, type of tank, new/used, volume, chemical stored, tank age, last Integrity test date, planned retrofit date and/or construction date, etc.) to the OCD for approval. The owner operator shall prioritize existing tanks for retrofit based on the toxicity and solubility (contaminant transport potential) of chemicals (BTEX, JP4, etc.) and site-specific threats to public health, safety, fresh water, and the environment. A work schedule with a phased approach extending beyond the standard 5-Year permit period may be approved by the OCD if the table is submitted within 3 months of permit issuance. The table(s) shall be considered approved if the OCD does not respond within 30 days of receipt of the table and work schedule.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
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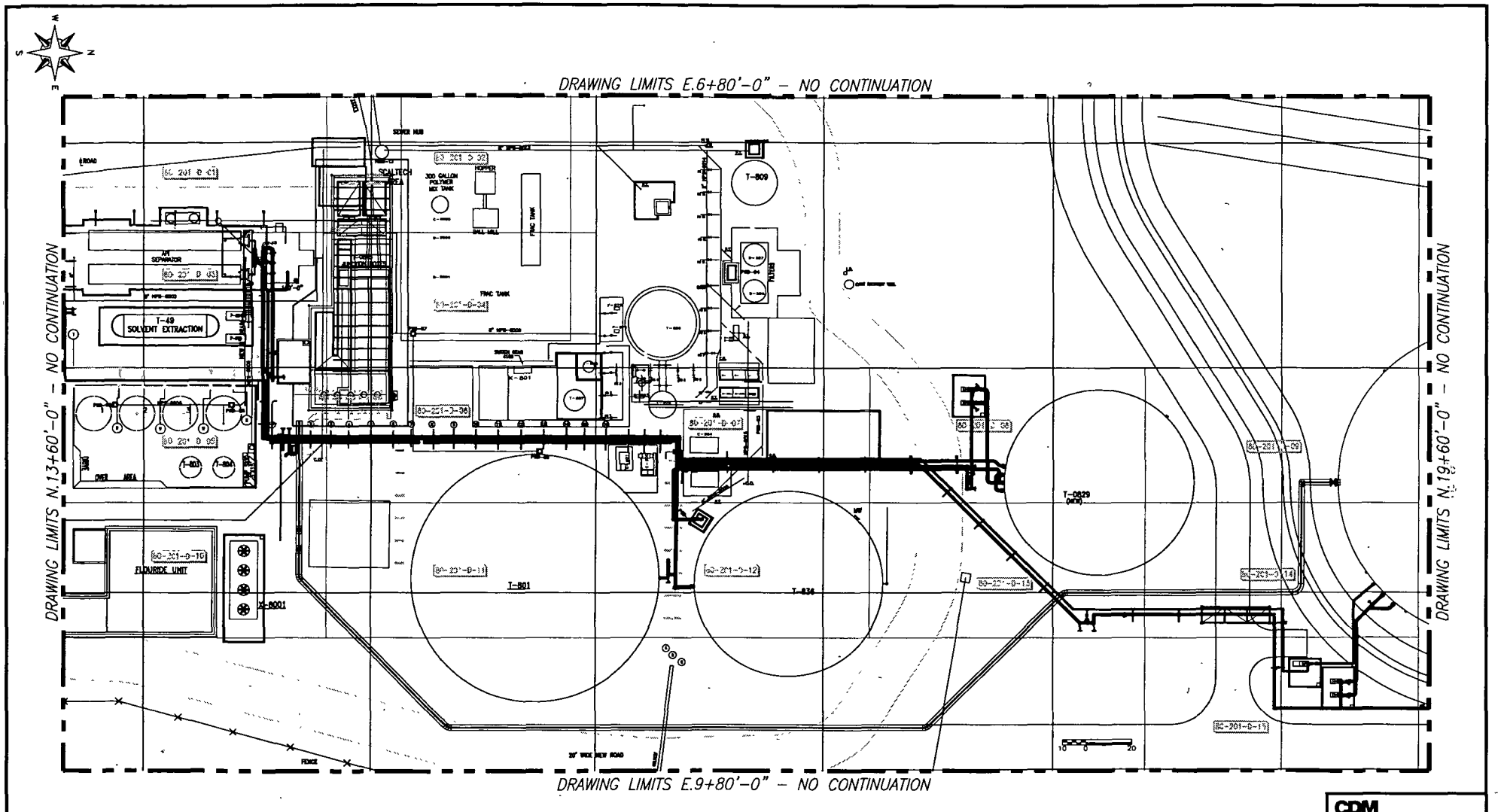
From: Moore, Darrell [mailto:Darrell.Moore@hollycorp.com]
Sent: Tuesday, May 03, 2011 11:02 AM
To: Chavez, Carl J, EMNRD; Monzeglio, Hope, NMENV
Cc: Lackey, Johnny; Siwek, Janusz; Davis, Gary
Subject: Tank Drawings for Waste Water Upgrade

Carl and Hope

Attached are drawings for two tanks that we will be building as part of our Waste Water System Upgrade. This project was discussed at the meeting we held in Santa Fe at OCD's offices in March, 2011. We are asking for approval to build these tanks. They are located just north of current waste water tank 836 and will have a liner under each tank with PVC Tattle Tales thru the ring wall to detect any leaks.

If you have any questions, please contact me at 575-746-5281. We would like to start construction by the end of this week if possible. Your attention to this matter is greatly appreciated.

Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company, LLC
Phone Number 575-746-5281
Cell Number 575-703-5058
Fax Number 575-746-5451



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DRAWING TITLE

PIPING KEY LOCATION PLAN WASTE WATER TREATMENT UNIT 80

NAVAJO REFINING CO.
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ARTESIA, NEW MEXICO

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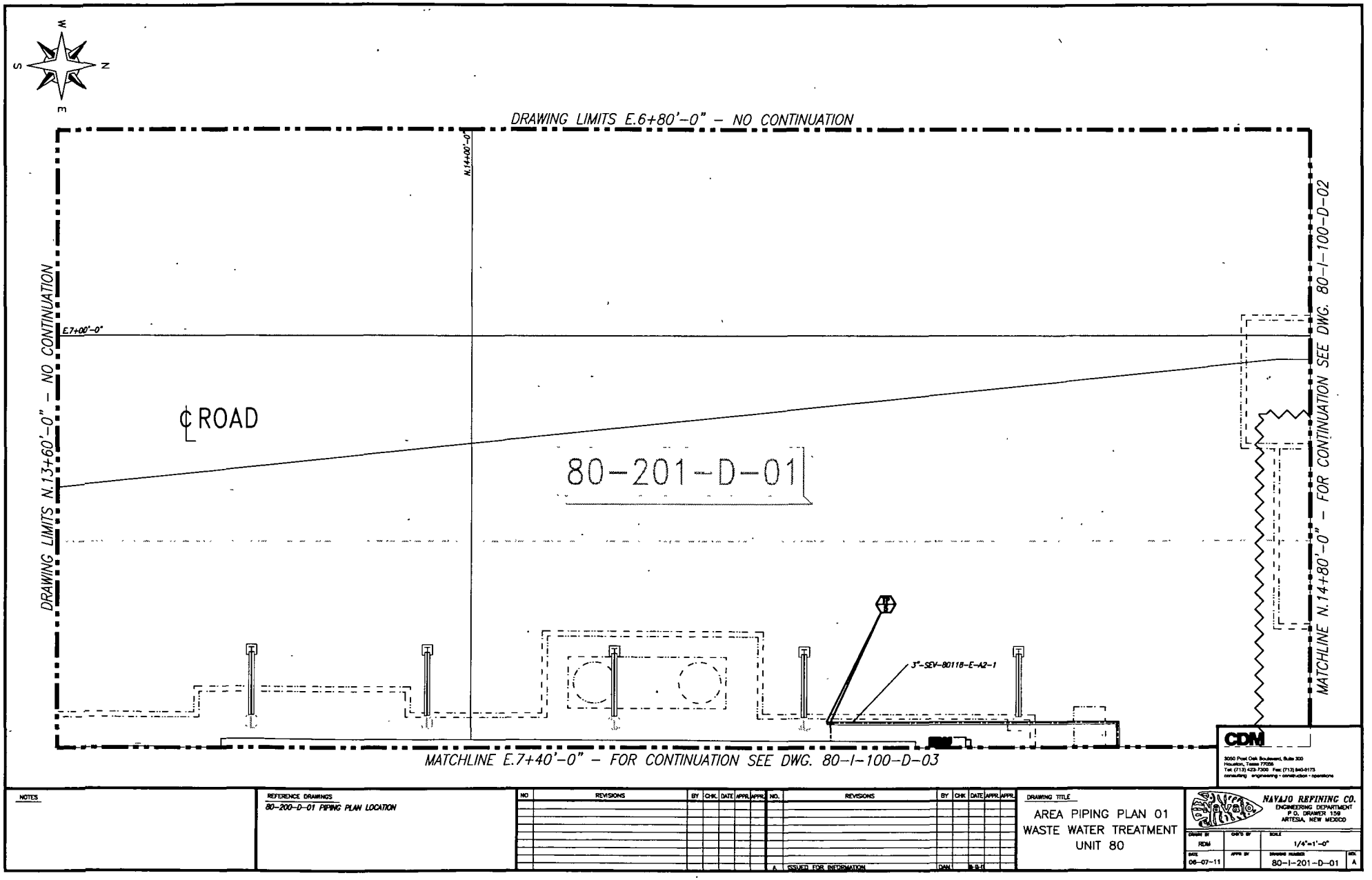

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REFERENCE DRAWINGS
80-200-D-01 PIPING PLAN LOCATION

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A	ISSUED FOR INFORMATION	DAM		8-8-11		

DRAWING TITLE
AREA PIPING PLAN 01
WASTE WATER TREATMENT
UNIT 80

NAVAJO REFINING CO.
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ARTESIA, NEW MEXICO

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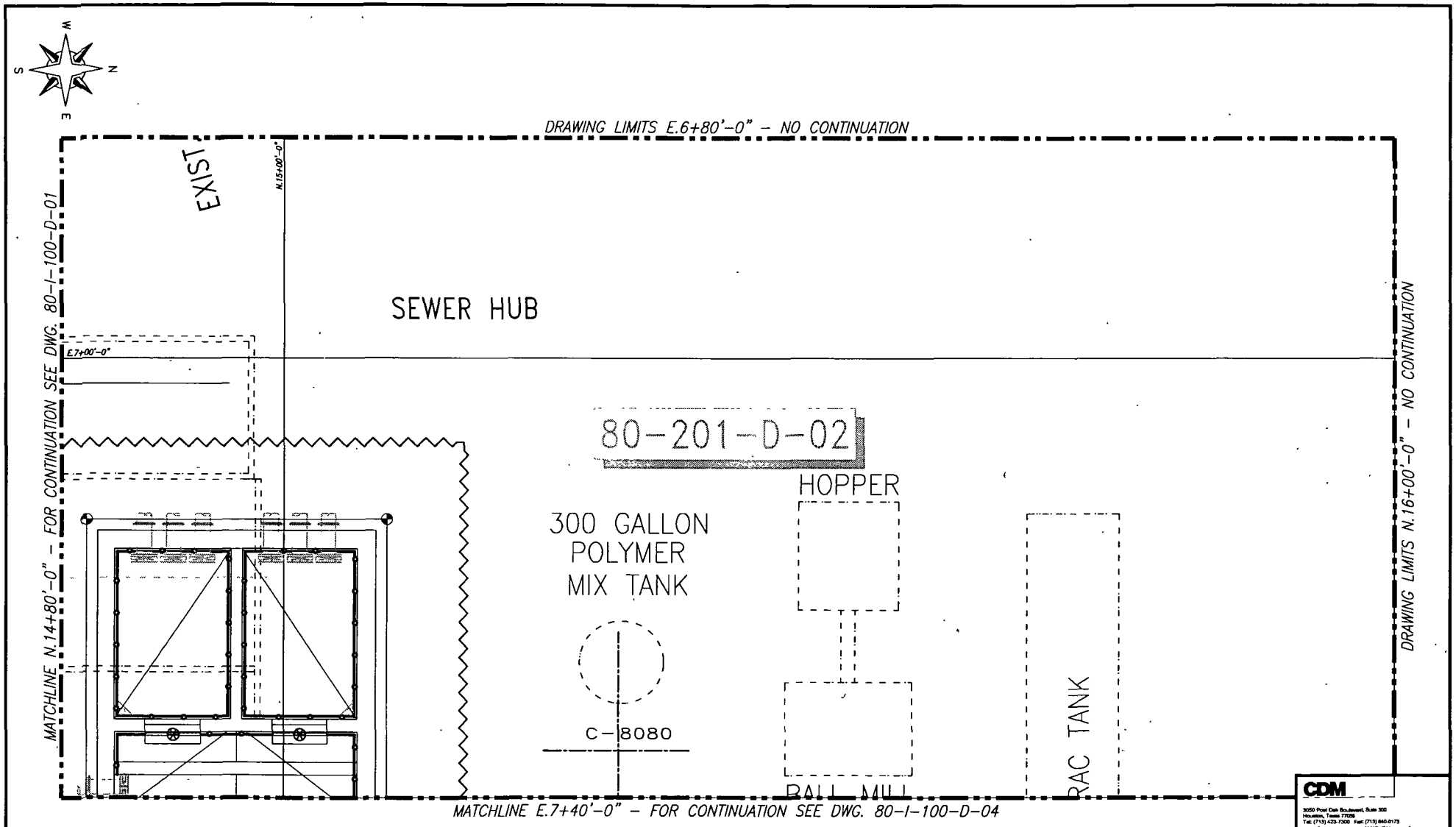

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80-200-D-01 PIPING PLAN LOCATION

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A	ISSUED FOR INFORMATION	DAH		8-9-11		

DRAWING TITLE
AREA PIPING PLAN 02
WASTE WATER TREATMENT
UNIT 80

NAVAJO REFINING CO.
ENGINEERING DEPARTMENT
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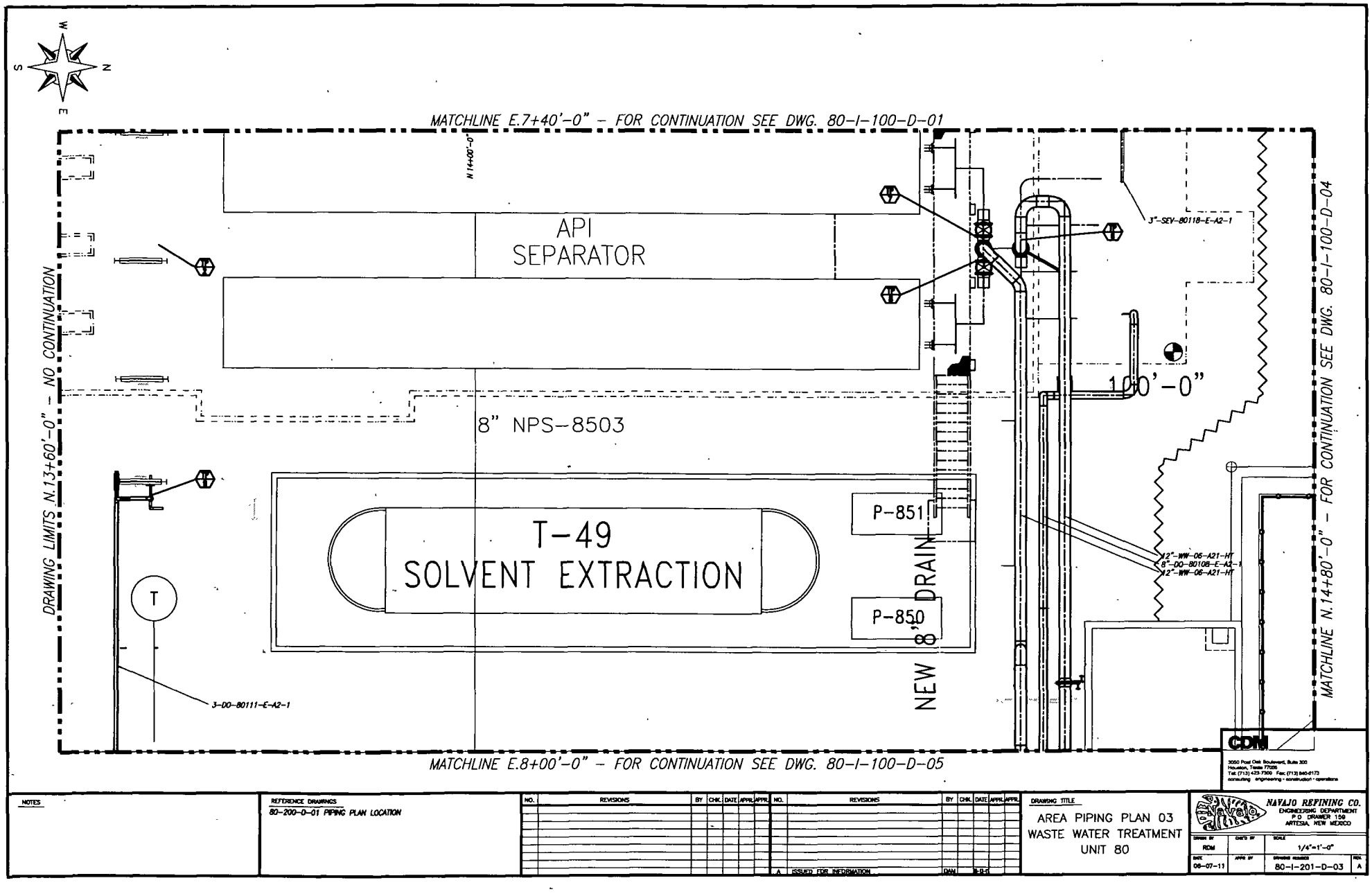

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DRAWING TITLE
AREA PIPING PLAN 03
WASTE WATER TREATMENT
UNIT 80

NAVAJO REFINING CO.
ENGINEERING DEPARTMENT
P.O. DRAWER 159
ARTESIA, NEW MEXICO

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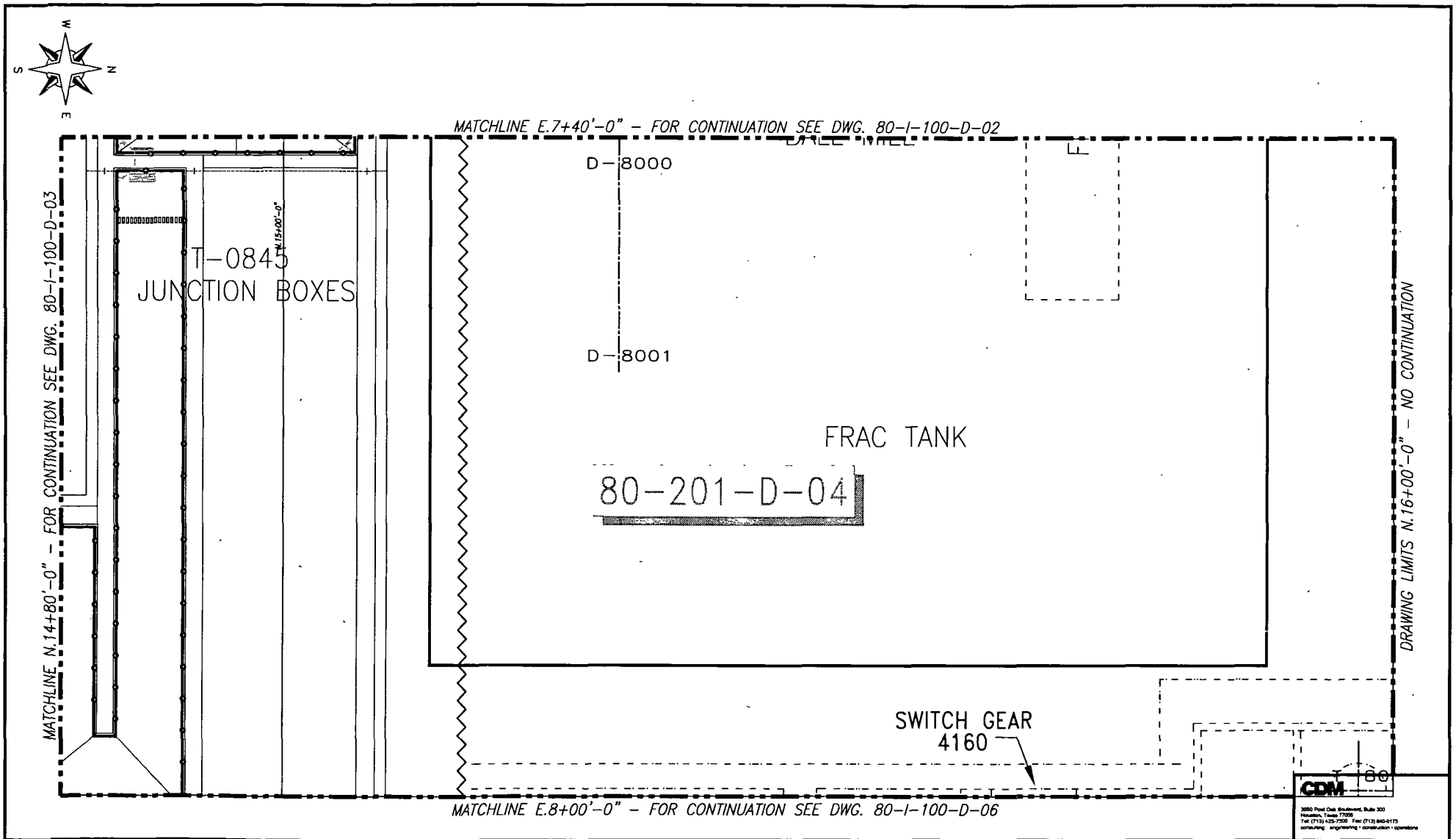

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AREA PIPING PLAN 04
WASTE WATER TREATMENT
UNIT 80

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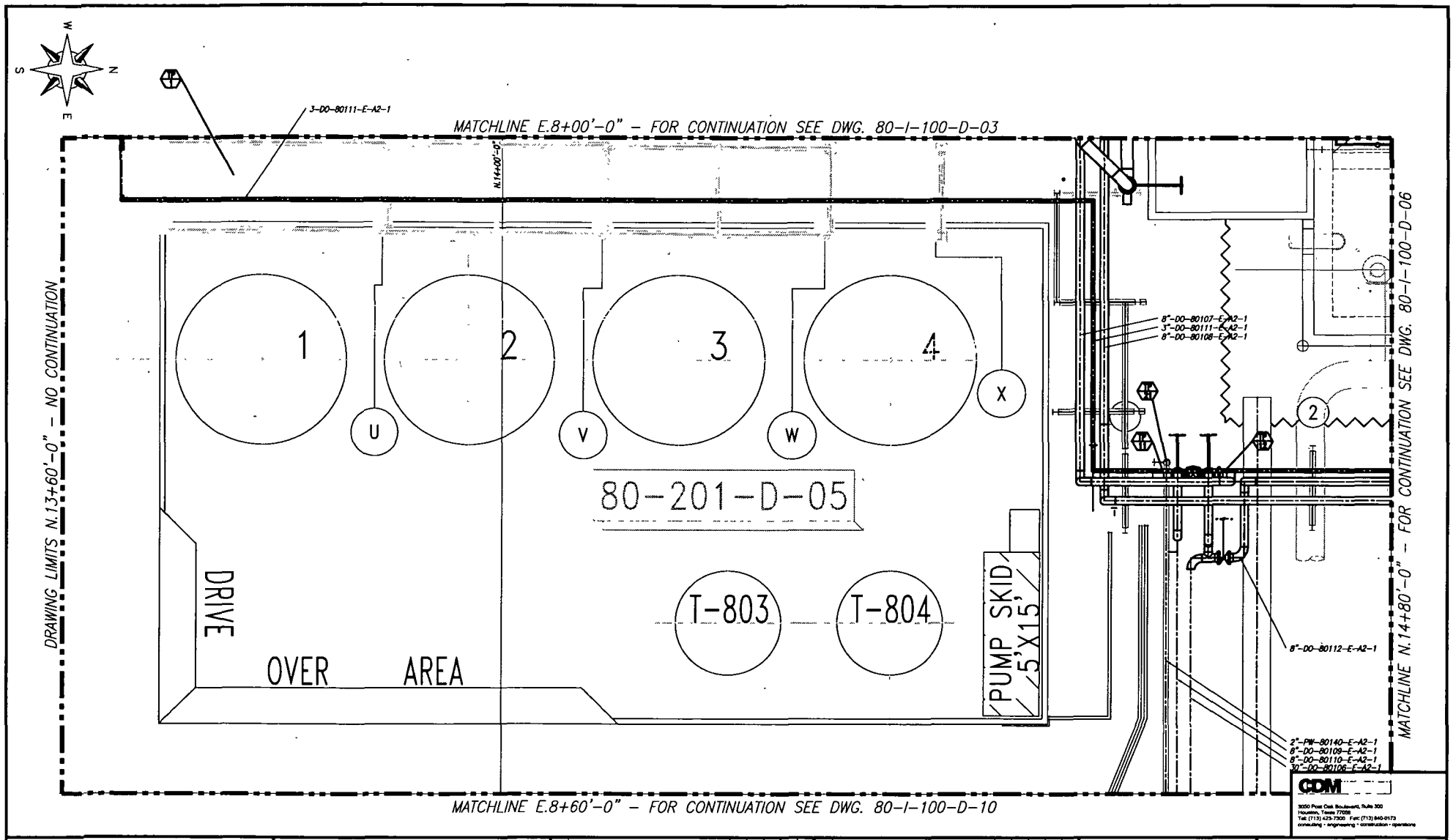

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80-200-D-01 PIPING PLAN LOCATION

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AREA PIPING PLAN 05
WASTE WATER TREATMENT
UNIT 80

NAVAJO REFINING CO.
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P.O. DRAWER 159
ARTESIA, NEW MEXICO

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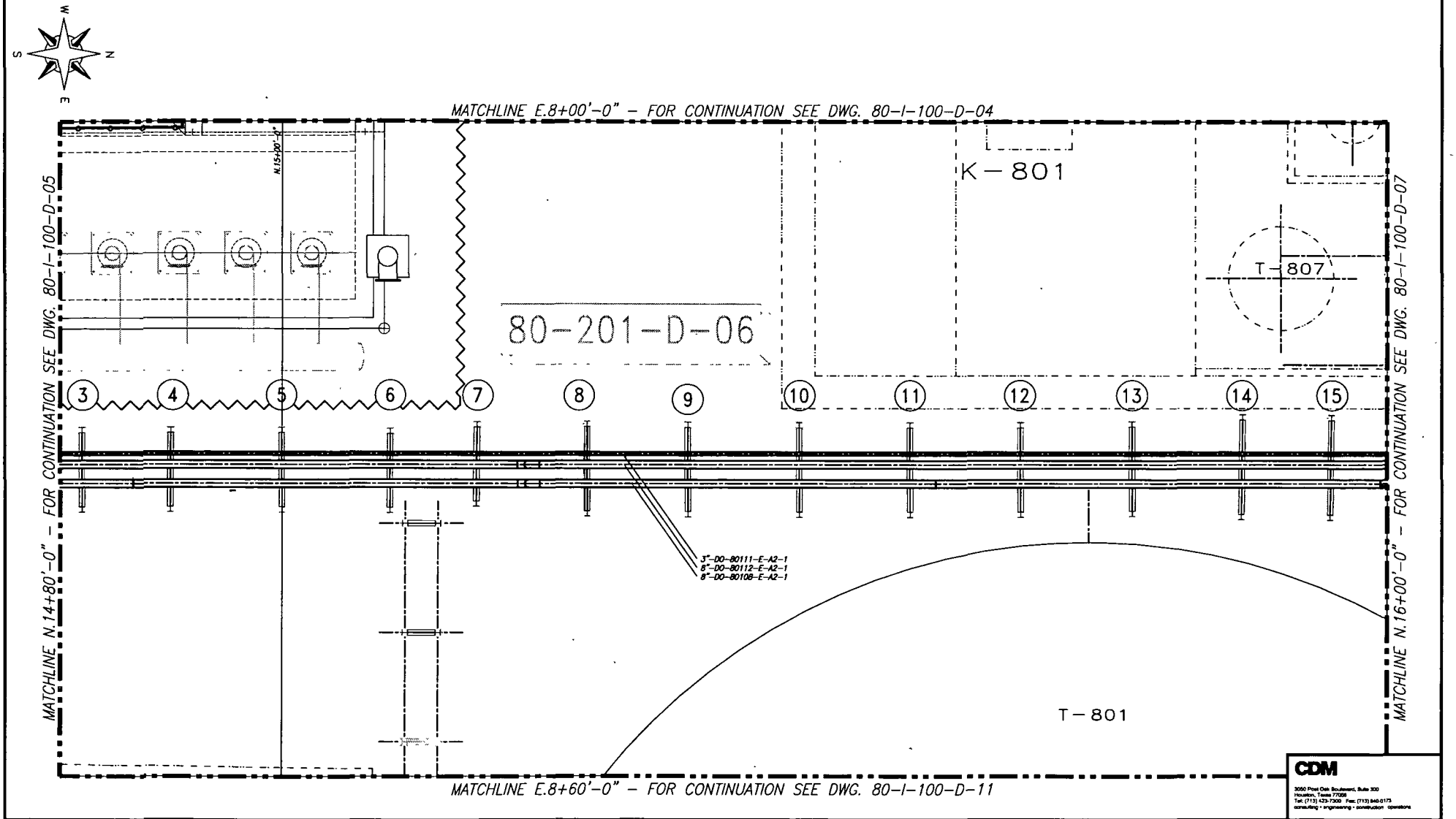

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DRAWING TITLE
AREA PIPING PLAN 06
WASTE WATER TREATMENT
UNIT 80

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ENGINEERING DEPARTMENT
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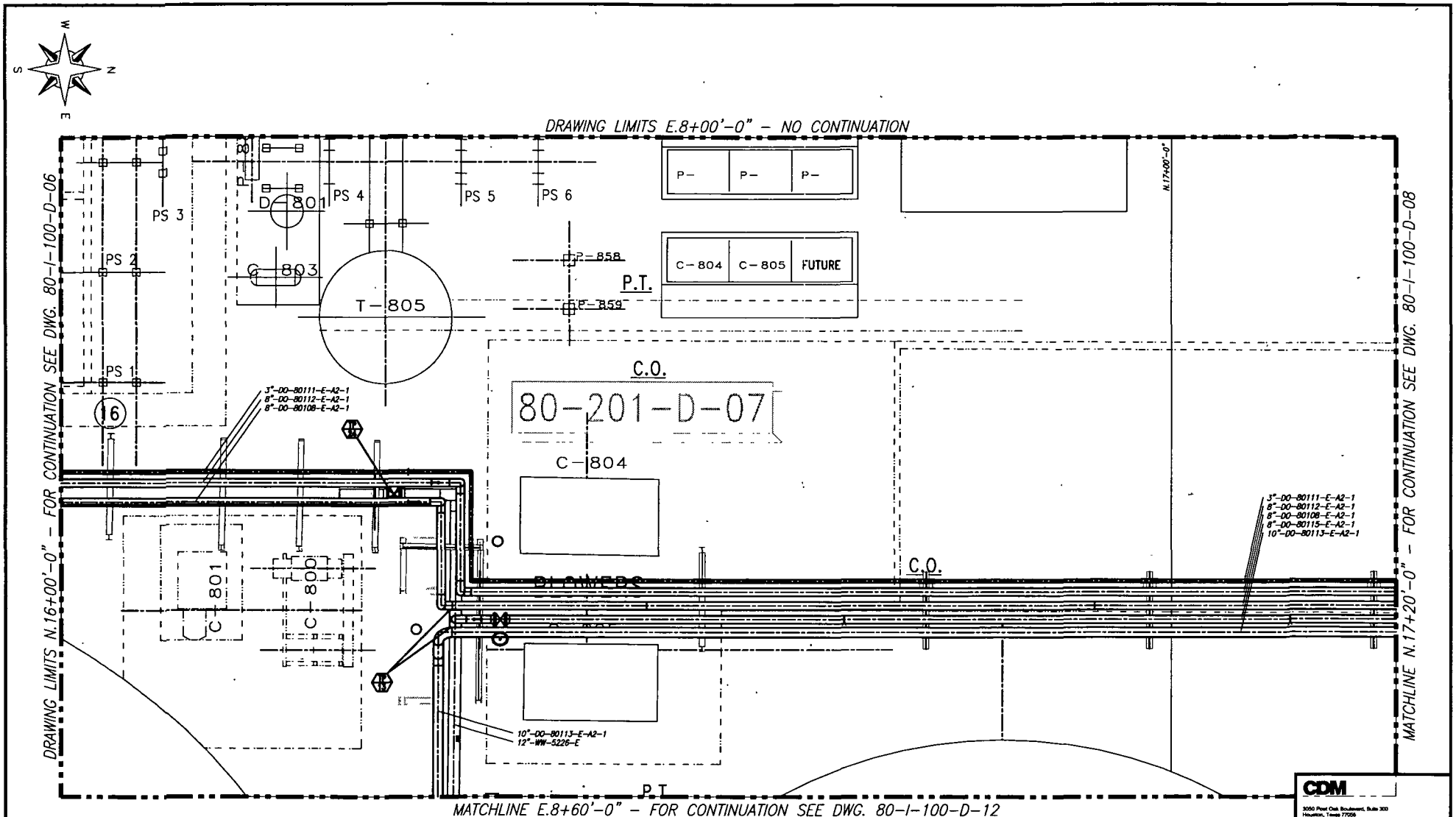

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80-200-D-01 PIPING PLAN LOCATION

NO	REVISIONS	BY	CHK	DATE	APPR	APPR
A	ISSUED FOR INFORMATION	DAN		6-9-11		

DRAWING TITLE
AREA PIPING PLAN 07
WASTE WATER TREATMENT
UNIT 80

NAVAJO REFINING CO.
ENGINEERING DEPARTMENT
P O DRAWER 159
ARTESIA, NEW MEXICO

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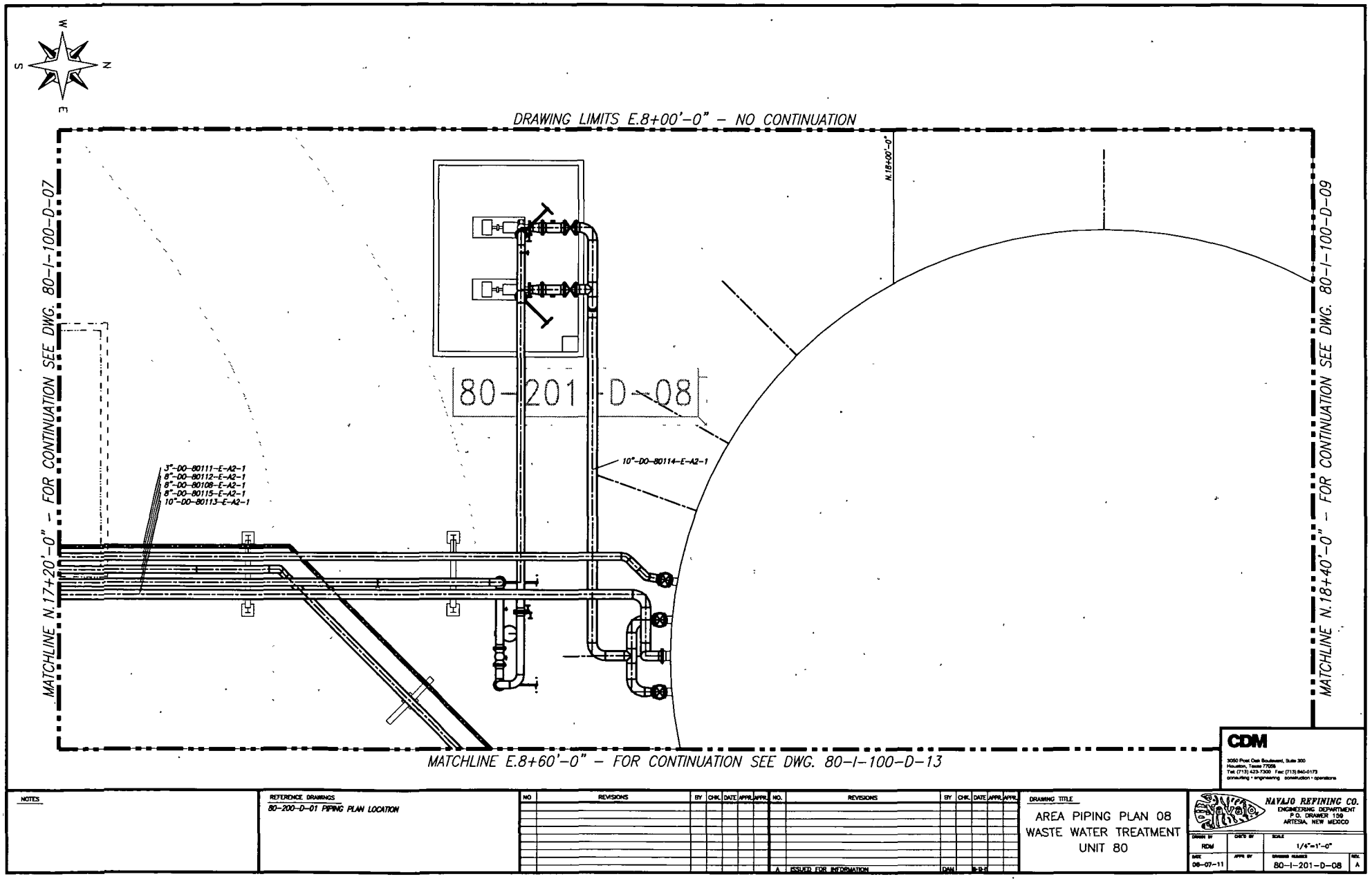

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NO.	REVISIONS	BY	CHK	DATE	APPR	APPR

DRAWING TITLE

AREA PIPING PLAN 08
WASTE WATER TREATMENT
UNIT 80

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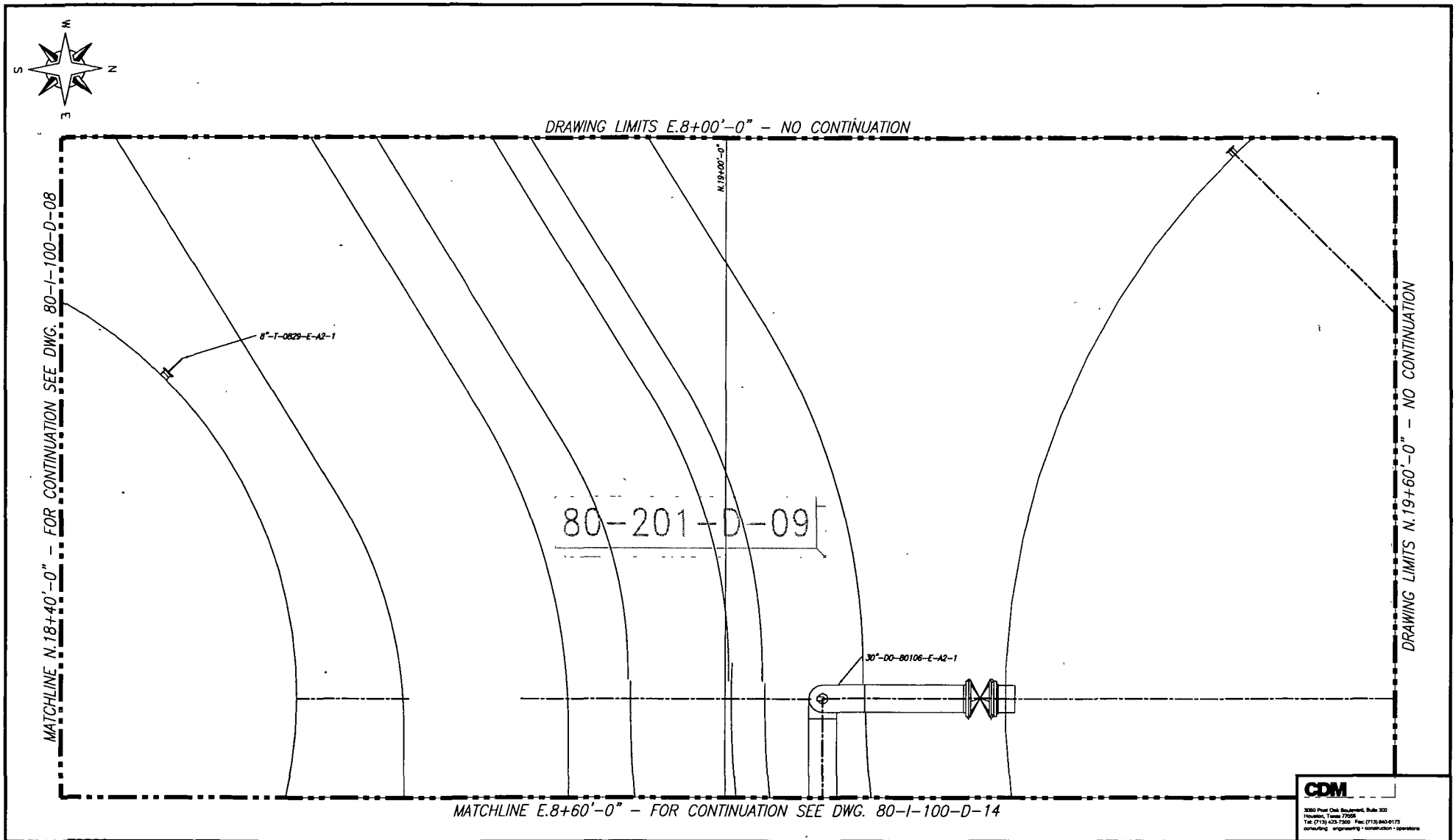

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NOTES

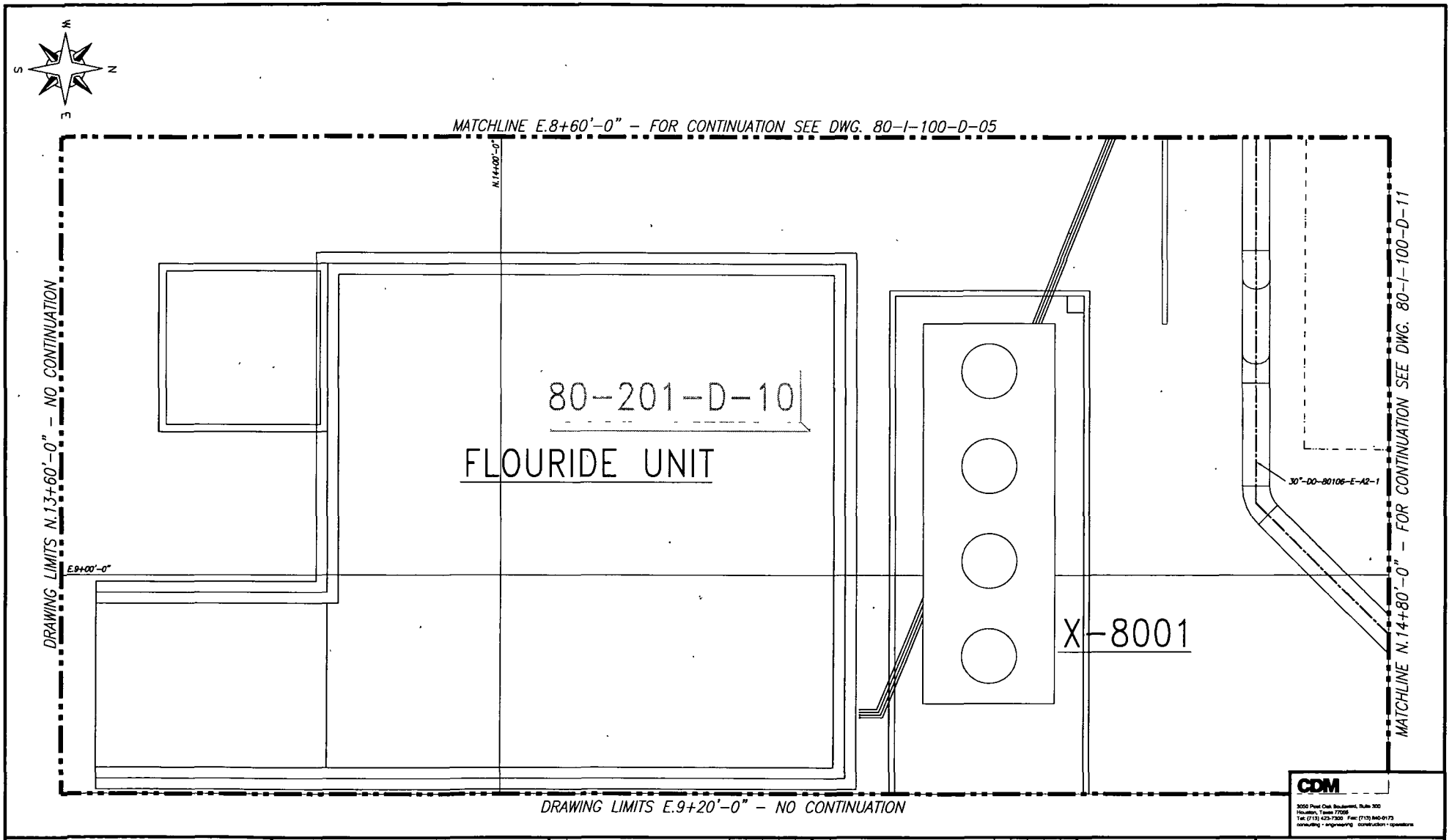
REFERENCE DRAWINGS
80-200-D-01 PIPING PLAN LOCATION

NO	REVISIONS	BY	CHK	DATE	APPR	APPR
A	ISSUED FOR INFORMATION	DAM		8-8-11		

DRAWING TITLE
AREA PIPING PLAN 09
WASTE WATER TREATMENT
UNIT 80 -

NAVAJO REFINING CO.
ENGINEERING DEPARTMENT
P.O. DRAWER 159
ARTESIA, NEW MEXICO

DRAWN BY	CHK'D BY	SCALE
RDM		1/4"=1'-0"
DATE	APPR BY	DRAWING NUMBER / REV.
08-07-11		80-I-201-D-09 / A



CDM
3050 Post Oak Boulevard, Suite 300
Houston, Texas 77056
Tel: (713) 423-7300 Fax: (713) 840-0173
consulting · engineering construction · operations

NOTES

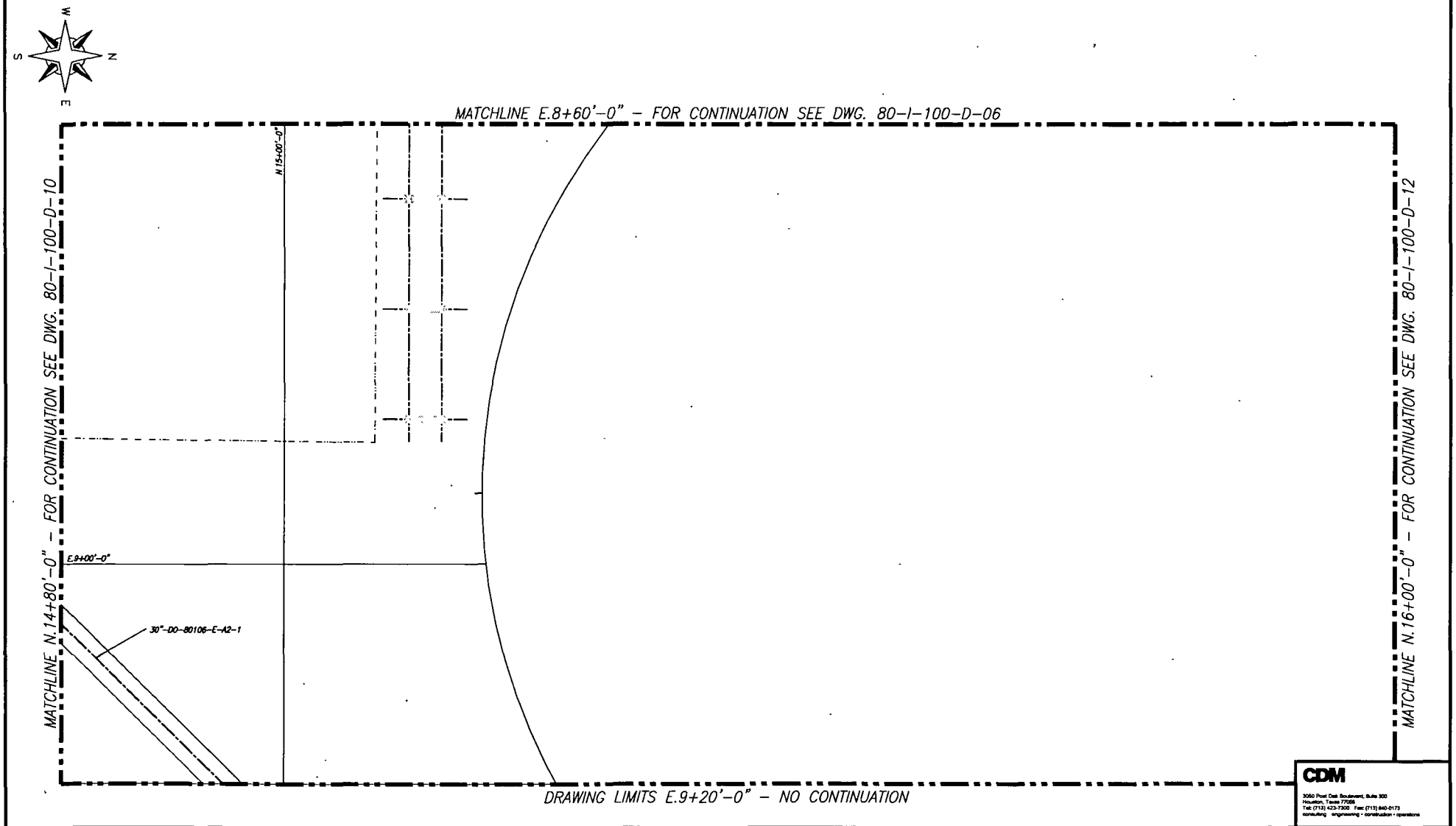
REFERENCE DRAWINGS
80-200-D-01 PIPING PLAN LOCATION

NO	REVISIONS	BY	CHK.	DATE	APPR.	APPR.
NO.	REVISIONS	BY	CHK.	DATE	APPR.	APPR.
A	ISSUED FOR INFORMATION	DAM		8-9-11		

DRAWING TITLE
AREA PIPING PLAN 10
WASTE WATER TREATMENT
UNIT 80

NAVAJO REFINING CO.
ENGINEERING DEPARTMENT
P.O. DRAWER 159
ARTESIA, NEW MEXICO

Drawn BY	Date BY	SCALE	
RDM		1/4"=1'-0"	
DATE 08-07-11	APPR. BY	DRAWING NUMBER 80-I-201-D-10	REV. A



CDM

3050 Post Oak Boulevard, Suite 300
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Tel: (713) 423-7300 Fax: (713) 840-0173
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NOTES

REFERENCE DRAWINGS

80-200-D-01 PIPING PLAN LOCATION

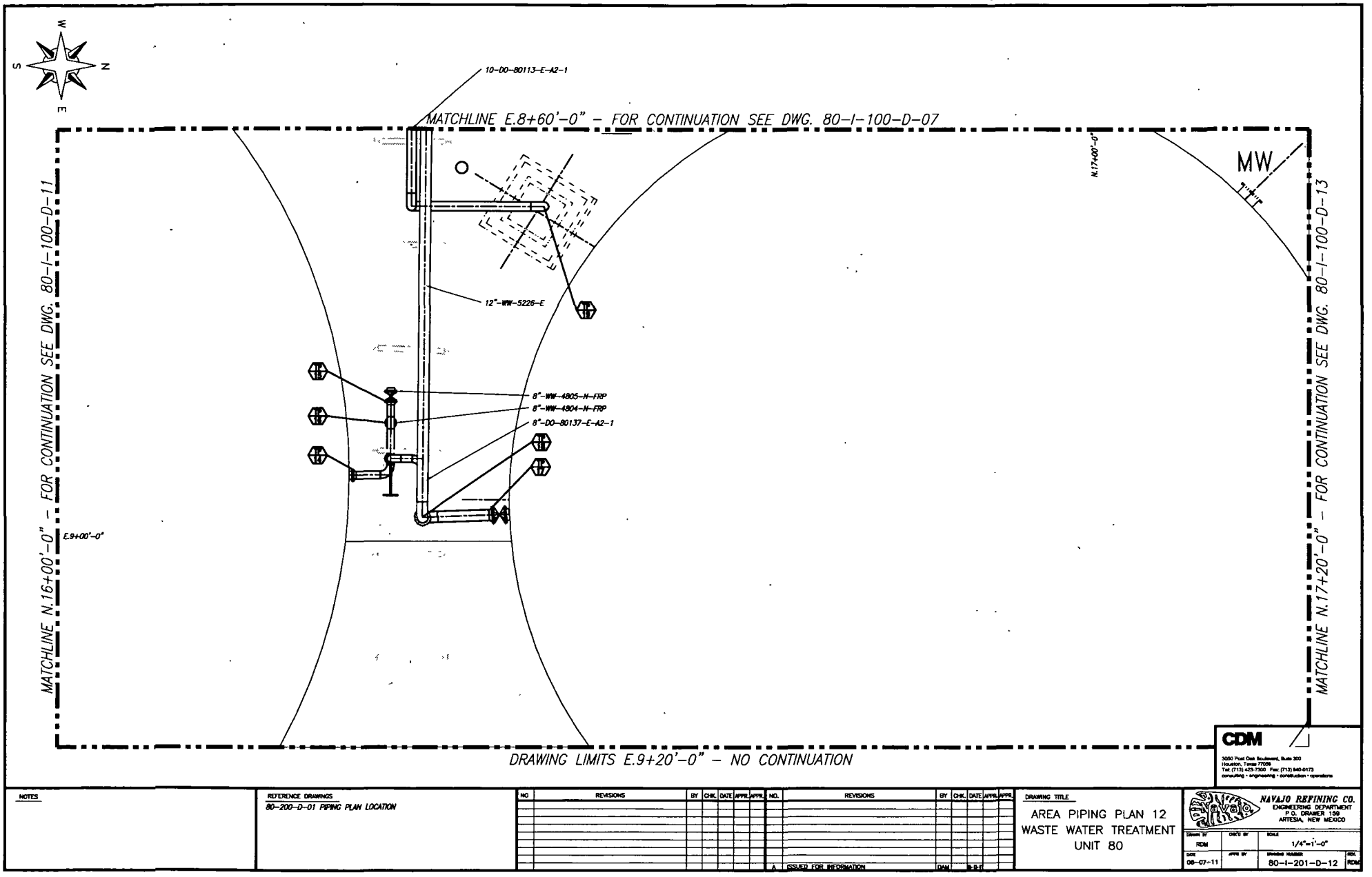
NO	REVISIONS	BY	CHK.	DATE	APPR.	APPR.
A	ISSUED FOR INFORMATION	DAN		11-9-11		

DRAWING TITLE

AREA PIPING PLAN 11
WASTE WATER TREATMENT
UNIT 80

NAVAJO REFINING CO.
ENGINEERING DEPARTMENT
P O DRAWER 159
ARTESIA, NEW MEXICO

DRAWN BY	CHK'D BY	SCALE
RDM		1/4"=1'-0"
DATE 06-07-11	APPR BY	DRAWING NUMBER 80-I-201-D-11 REV. A



CDM

3050 Post Oak Boulevard, Suite 300
Houston, Texas 77056
Tel: (713) 625-7300 Fax: (713) 840-0173
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NOTES

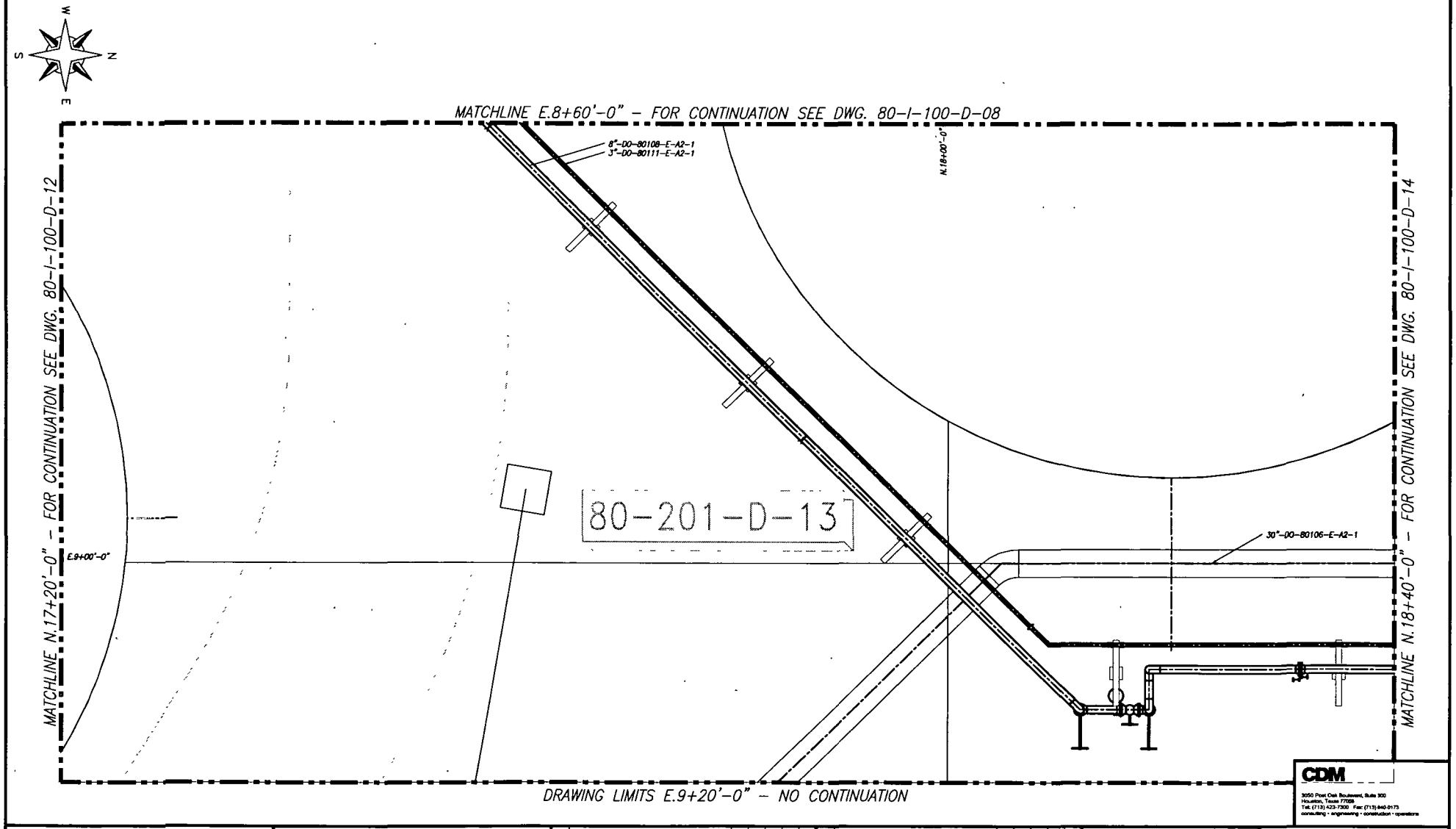
REFERENCE DRAWINGS
80-200-D-01 PIPING PLAN LOCATION

NO	REVISIONS	BY	CHK.	DATE	APPR.	APPR.	NO.	REVISIONS	BY	CHK.	DATE	APPR.	APPR.
A	ISSUED FOR INFORMATION	DAM		8-8-11									

DRAWING TITLE
AREA PIPING PLAN 12
WASTE WATER TREATMENT
UNIT 80

NAVAJO REFINING CO.
ENGINEERING DEPARTMENT
P.O. DRAWER 159
ARTESIA, NEW MEXICO

Drawn BY	CHK'D BY	SCALE
RDM		1/4"=1'-0"
DATE	APP'D BY	DRAWING NUMBER / REV.
08-07-11		80-I-201-D-12 / RDM



CDM

3050 Post Oak Boulevard, Suite 300
Houston, Texas 77056
Tel: (713) 423-7300 Fax: (713) 440-0173
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NOTES

REFERENCE DRAWINGS

80-200-D-01 PIPING PLAN LOCATION

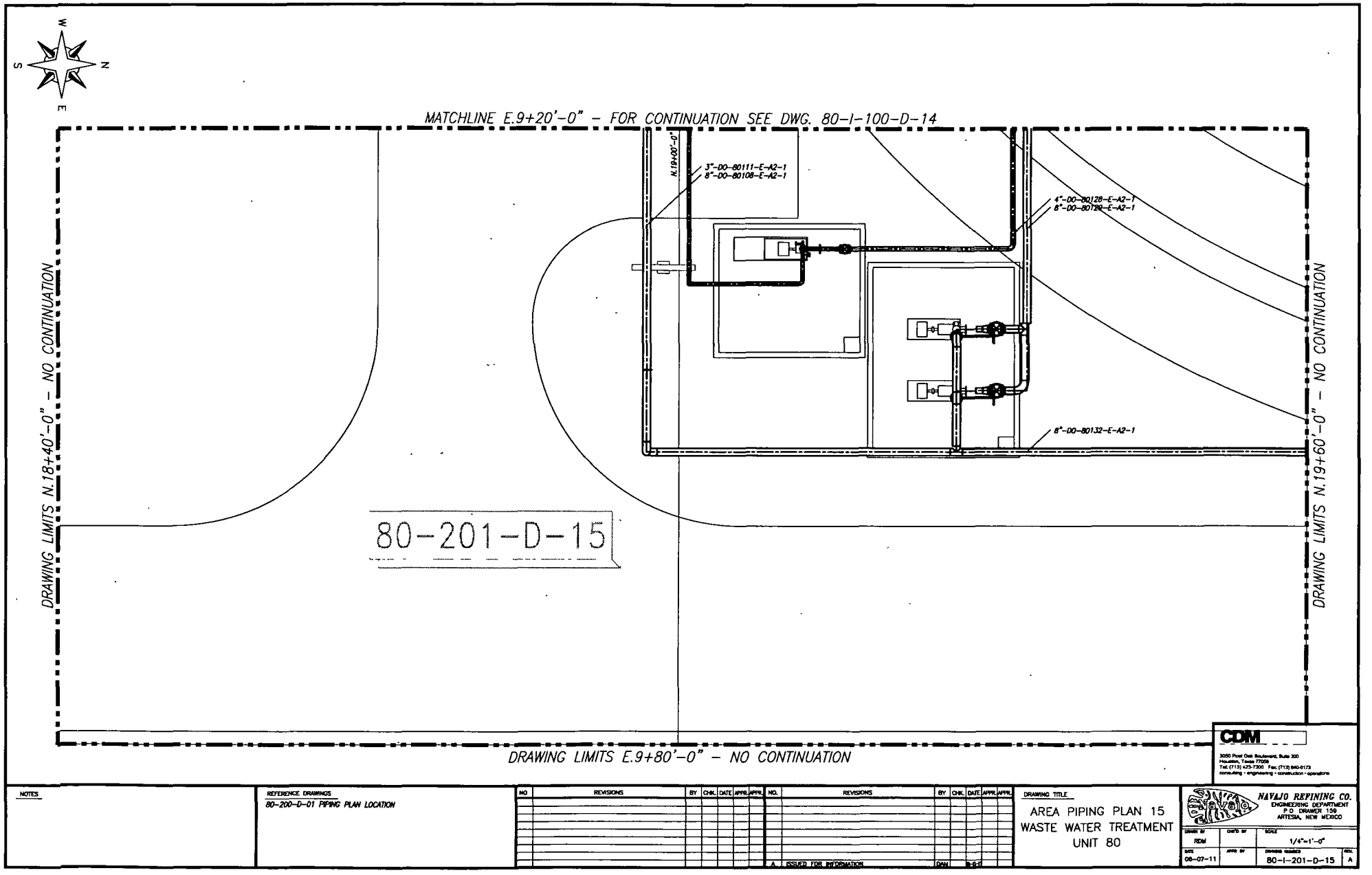
NO.	REVISIONS	BY	CHK.	DATE	APPR.	APPR.
A	ISSUED FOR INFORMATION	DAH		8-9-11		

DRAWING TITLE

AREA PIPING PLAN 13
WASTE WATER TREATMENT
UNIT 80

NAVAJO REFINING CO.
ENGINEERING DEPARTMENT
P.O. DRAWER 159
ARTESIA, NEW MEXICO

DRAWN BY	CHK'D BY	SCALE
RDM		1/4"=1'-0"
DATE 08-07-11	APP'D BY	DRAWING NUMBER 80-I-201-D-13 REV. A



CDM
3050 Post Oak Boulevard, Suite 300
Houston, Texas 77056
Tel: (713) 623-7300 Fax: (713) 840-0173
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NOTES

REFERENCE DRAWINGS
80-200-D-01 PIPING PLAN LOCATION

NO	REVISIONS	BY	CHK.	DATE	APPR.	APPR.
A	ISSUED FOR INFORMATION	DAM		06-6-11		

DRAWING TITLE
AREA PIPING PLAN 15
WASTE WATER TREATMENT
UNIT 80

NAVAJO REFINING CO.
ENGINEERING DEPARTMENT
P.O. DRAWER 159
ARTESIA, NEW MEXICO

DRAWN BY	CHK'D BY	SCALE
RDM		1/4"=1'-0"
DATE	APPR BY	DRAWING NUMBER / REV.
06-07-11		80-I-201-D-15 / A

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, February 25, 2011 3:06 PM
To: 'Moore, Darrell'
Cc: Lackey, Johnny; Siwek, Janusz; Vasquez, Clemente; Sanchez, George; VonGonten, Glenn, EMNRD; Monzeglio, Hope, NMENV; Powell, Richard, NMENV
Subject: Navajo Refining Company Artesia Refinery (GW-028) "Minor Modification" to Section 13(A) Hydrotest Requirements for New Waste Water Effluent Line to UIC Class I (NH) Disposal Wells WDWs 1, 2 & 3

Darrell, et al.:

The OCD hereby **temporarily approves** the "sectional hydro test" method proposed by the Navajo Refining Company (NRC) below for "good cause" with the following conditions:

1) The new line shall be inspected daily for leakage after construction (flow start date when waste water effluent is flowing to the disposal wells) until a successful hydro test is achieved;
2) The hydro test must be performed within 3 months of completion of the new line and the flow start date; and
3) The operator must accept the "Minor Modification" conditions to the discharge permit outlined below.

The OCD hereby issues the "**Minor Modification**" pertaining to Section 13(A) (see Section provided below) of the current OCD Discharge Permit based on the acceptance of the above listed conditions by the NRC.

OCD Existing Permit Conditions:

13. Underground Process/Wastewater Lines:

A. The owner/operator shall provide a comprehensive spreadsheet/table listing of all underground process/wastewater pipelines within 3 months of permit issuance to establish the basis for compliance with this provision. The owner/ operator shall perform mechanical integrity testing (MIT) at least once every five (5) years and/or complete a minimum of 20% per year of the underground process/wastewater pipeline MITs before the expiration date of the permit to demonstrate the mechanical integrity of all underground process/wastewater pipelines, except lines containing fresh water or fluids that are gases at atmospheric temperature and pressure. Pressure rated pipe shall be tested by pressuring up to one and one-half times the normal operating pressure, if possible, or for atmospheric drain systems, to 3 pounds per square inch greater than normal operating pressure, and pressure held for a minimum of 30 minutes with no more than a 1% loss/gain in pressure. The owner/ operator may use other methods for testing if approved by the OCD. The OCD shall be notified at least 72 hours prior to all testing.

OCD New "Minor Modification" Conditions to Section 13(A):

Pressure rated pipe shall be tested by pressuring up to one and one-half times the normal operating pressure, if possible, or for atmospheric drain systems, to 3 pounds per square inch greater than normal operating pressure, and pressure held for a minimum of 30 minutes with no more than a 1% loss/gain in pressure. ***The exception is the "Waste Water Fiberglass Effluent Pipeline" to the UIC Class I (NH) Disposal Wells "WDWs 1, 2 & 3" that require testing on an annual basis and shall be tested by pressuring up to not less than 1200 psig nor greater than 1400 psig with pressure held for a minimum of 30 minutes with no more than 1% loss/gain in pressure.*** The owner/ operator may use other methods for testing if approved by the OCD. The OCD shall be notified at least 72 hours prior to all testing.

Please confirm that NRC accepts the terms and conditions stated above. Please contact me if you have questions. Thank you.

Please be advised that OCD approval of this plan does not relieve Navajo Refining Company of responsibility should their operations fail to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD approval does not relieve Navajo Refining Company of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
"Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at:
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

From: Moore, Darrell [mailto:Darrell.Moore@hollycorp.com]
Sent: Friday, February 25, 2011 12:50 PM
To: Chavez, Carl J, EMNRD
Cc: Lackey, Johnny; Siwek, Janusz; Vasquez, Clemente; Sanchez, George
Subject: Hydrotest on new Effluent Line

Carl

As you know, Navajo is installing a new effluent pipeline to our injection wells. This new pipeline is made of fiberglas and has different specifications than our steel pipeline that is currently in service. As the line is being constructed, it is being hydrotested to 1600 psi in sections. This is done so in case there is a problem, that leak can be repaired right then.

As you are aware, Navajo is having some major issues with waste water right now. The sooner we can get this new line into service, the sooner we can alleviate some of those issues. With that in mind, is it possible to use these "sectional" hydrotests in lieu of the full hydrotest once the line is finished? This would save Navajo some time in getting the line operational. As an alternative, if that option is not acceptable, would OCD be open to postponing the full hydrotest for say 3 months. That would give Navajo some time to work off our excess wastewater before we shut the line down for the full hydrotest.

Along the same lines, the current permit says that we will test the line to 1 ½ times operating pressure. The operating pressure of the system will be approximately 1300 lbs +/-. The new fiberglas line is only guaranteed to 1630 psi. It is "rated" quite a bit higher than that, but the manufacturer's guarantee is only to 1630. Obviously, 1630 psi would not cover the 1 ½ times operating pressure that our permit currently requires. To maintain our warranty on the line, Navajo is requesting that the hydrotest pressure on the line be limited to 1630 psi.

Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company, LLC
Phone Number 575-746-5281
Cell Number 575-703-5058
Fax Number 575-746-5451

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, February 11, 2011 2:50 PM
To: 'Moore, Darrell'; Lackey, Johnny
Cc: VonGonten, Glenn, EMNRD
Subject: RE: Abandonment Plan - Effluent Waste Water Line

Approved.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention and Waste Minimization Guidance is under "About Us- Environmental Bureau"
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

OCD Online File: "Modifications 2011"

From: Moore, Darrell [mailto:Darrell.Moore@hollycorp.com]
Sent: Friday, February 11, 2011 2:39 PM
To: Chavez, Carl J, EMNRD; Lackey, Johnny
Cc: VonGonten, Glenn, EMNRD
Subject: RE: Abandonment Plan - Effluent Waste Water Line

The new pipeline is in the exact same **right of way** as the old one. It is NOT exactly in the location of the abandoned pipeline, but it is within 5 feet of it.

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Friday, February 11, 2011 2:20 PM
To: Moore, Darrell; Lackey, Johnny
Cc: VonGonten, Glenn, EMNRD
Subject: FW: Abandonment Plan - Effluent Waste Water Line

Darrell, et al.:

I am in receipt of the maps of the new pipeline that OCD recently reviewed from the Navajo Refining Company (NRC),.

I believe NRC submitted the same maps of the pipeline to satisfy the approval condition by the OCD for the abandonment plan of the old pipeline?

If this is the case, please reply this message and indicate that the new effluent pipeline transect is exactly in the location of the abandoned pipeline. If it is not the same, then NRC has not satisfied the OCD condition for approval of the old pipeline that is being replaced.

Please reply within 5 working days to this message.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention and Waste Minimization Guidance is under "About Us- Environmental Bureau"
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

From: Chavez, Carl J, EMNRD
Sent: Tuesday, February 08, 2011 7:59 AM
To: 'Moore, Darrell'
Cc: VonGonten, Glenn, EMNRD
Subject: RE: Abandonment Plan - Effluent Waste Water Line

Darrell:

The abandonment plan for the existing effluent waste water line is approved with the following condition:

- Please send the OCD a map(s) depicting the actual location of the existing line (i.e., 7.5 Minute USGS Quadrangle Scale) by COB this Friday so the OCD can place it along with your abandonment procedure on OCD Online in the event there are any future issues with accidental burial, run-ins with the line, etc.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Moore, Darrell [mailto:Darrell.Moore@hollycorp.com]
Sent: Tuesday, February 08, 2011 7:27 AM
To: Chavez, Carl J, EMNRD
Subject: Abandonment Plan - Effluent Waste Water Line

Carl,

Per your email of January 5, 2011. Navajo is submitting the following abandonment plan for the old effluent waste water line. The plan is as follows:

Abandonment plan will consist of removing all water from existing pipeline via running multiple pigs into frac tanks. Once all the water has been removed, then the pipeline will be cut off below grade and capped at both the start and end of the pipeline and at each lateral. Then the cathodic protection will be removed from the line.

If you have any questions concerning this submission, please contact me at 575-746-5281.

Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company, LLC
Phone Number 575-746-5281
Cell Number 575-703-5058
Fax Number 575-746-5451

NAVAJO REFINING COMPANY, LLC

FAX
(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

FAX
(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

February 10, 2011

RECEIVED OCD
2011 FEB 11 P 1:30

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

RE: MAP AND LOCATION OF REPLACEMENT EFFLUENT LINE

Carl,

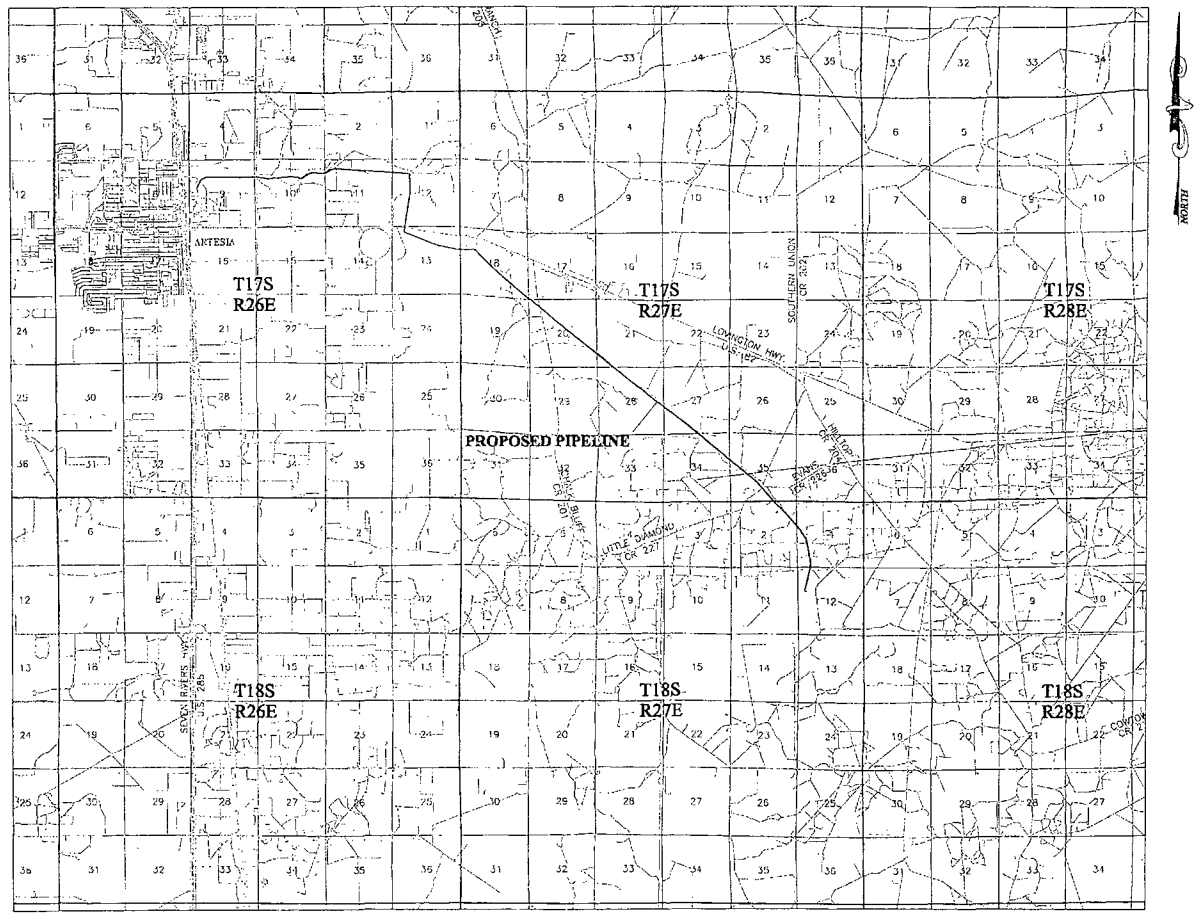
Per your e mail request of February 8, 2011, please find the enclosed maps showing the location of our new effluent pipeline. If there are any questions concerning this submission, please call me at 575-746-5281.

Sincerely,
NAVAJO REFINING COMPANY, LLC

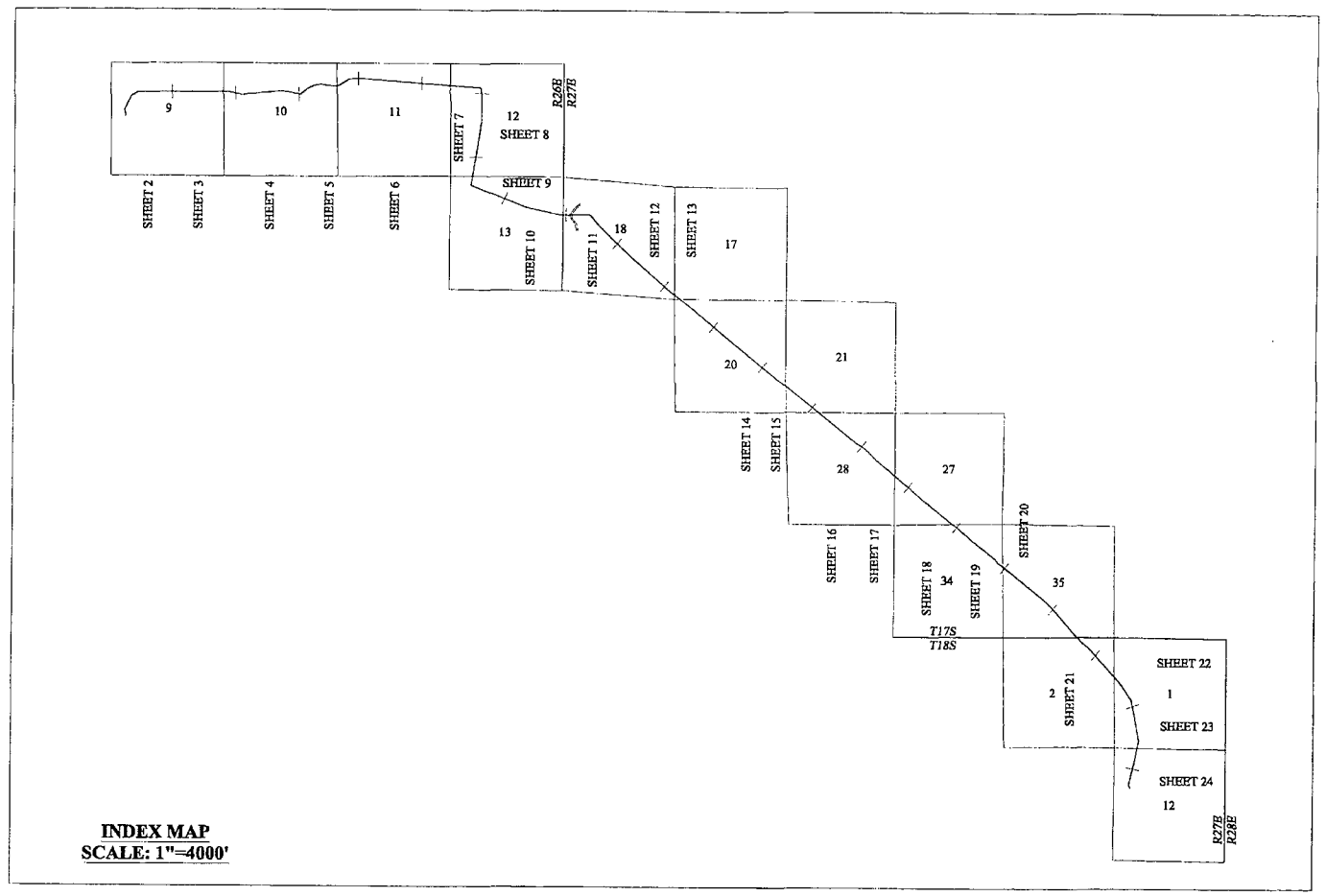
Darrell Moore

Darrell Moore
Environmental Manager for Water and Waste

Encl:



VICINITY MAP
NOT TO SCALE



INDEX MAP
SCALE: 1"=4000'

LEGEND AND GENERAL NOTES:

- ⊙ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——— – DENOTES FENCE LINE
- — — — – DENOTES ELECTRIC LINE
- ——— – DENOTES EXISTING PIPELINE BY OTHERS
- ——— – DENOTES EXISTING WASH OR DITCH
- ——— – DENOTES EXISTING ROAD

GENERAL NOTES:

1) BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

2) REFER TO INDIVIDUAL PLATS SUBMITTED BY JOHN WEST SURVEYING COMPANY.

3) UTILITY LOCATIONS SHOWN ARE FROM OBSERVED SURFACE EVIDENCE. ACTUAL LOCATIONS SHOULD BE VERIFIED.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

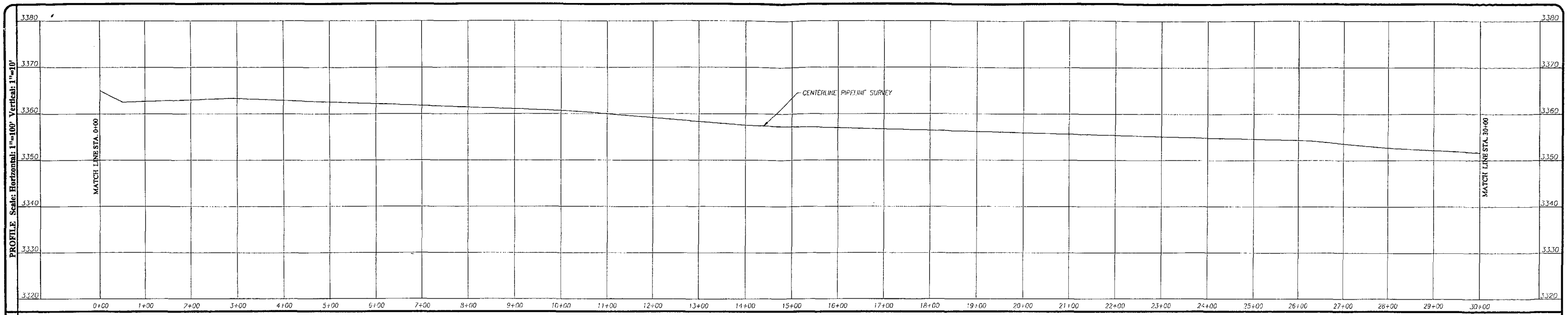
HOLLY ENERGY PARTNERS
PROPOSED PIPELINE INDEX MAP, LEGEND AND GENERAL NOTES

PROVIDING SURVEYING SERVICES SINCE 1948
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	1 of 24 TITLE SHEET
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/20/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

0+00 BEGIN SURVEY 15' SOUTH OF EXIST. 8" EFFLUENT LINE (3365.0')

4+56.1 P.I. 13°24'57" LT. (3362.5')

7+31 DOUBLE POLE O.H. ELEC. LN. (3362.5')

24+91.7 P.I. 40°43'22" RT. (3363.3')

5+23 DOUBLE POLE O.H. ELEC. LN. (3362.8')

7+90 PAVED ROAD 12' WIDE (3362.4')

10+17.4 P.I. 36°04'45" RT. (3360.8')

14+06.7 P.I. 27°19'37" RT. (3357.6')

14+83 7' CHAIN LINK FENCE (3356.9')

15+93 DOUBLE POLE O.H. ELEC. LN. (3356.6')

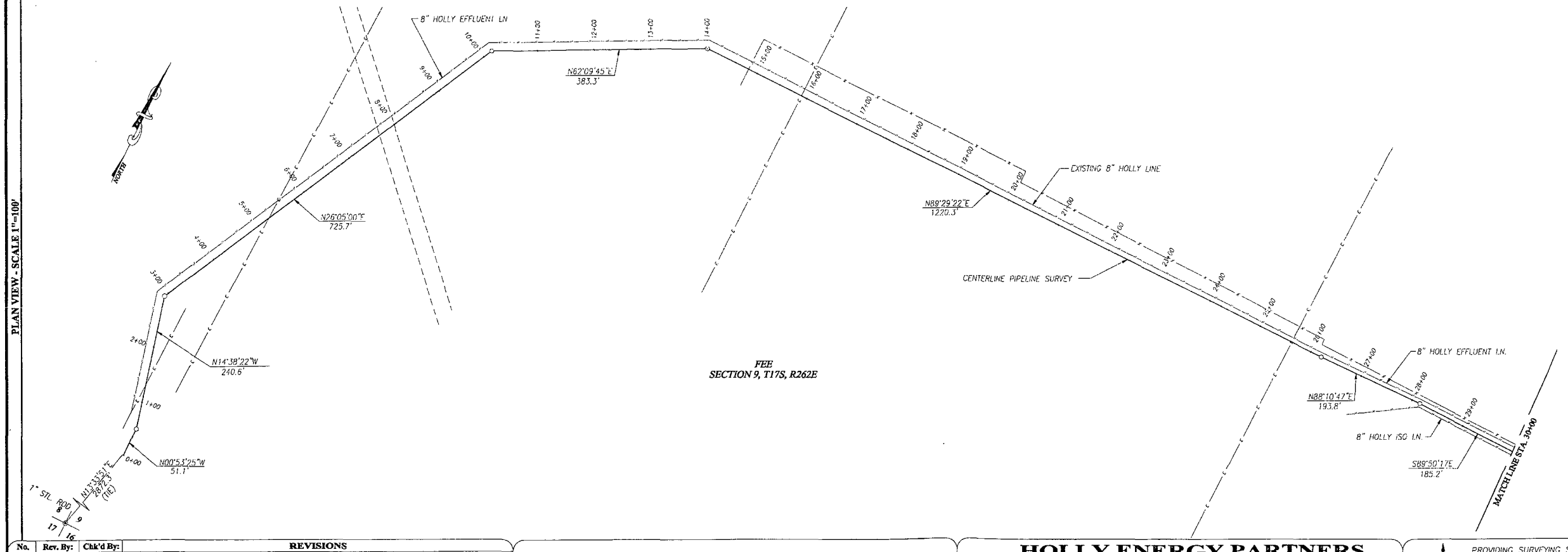
20+00 NATURAL GROUND (3355.5')

25+63 2-#4 O.H. ELEC. LN (3354.3')

26+21.0 P.I. 40°18'35" LT. (3354.3')

28+16.8 P.I. 01°38'56" RT. (3352.8')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊗ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——E—— – DENOTES ELECTRIC LINE
- ——— – DENOTES EXISTING PIPELINE BY OTHERS
- – – – – – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = = DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

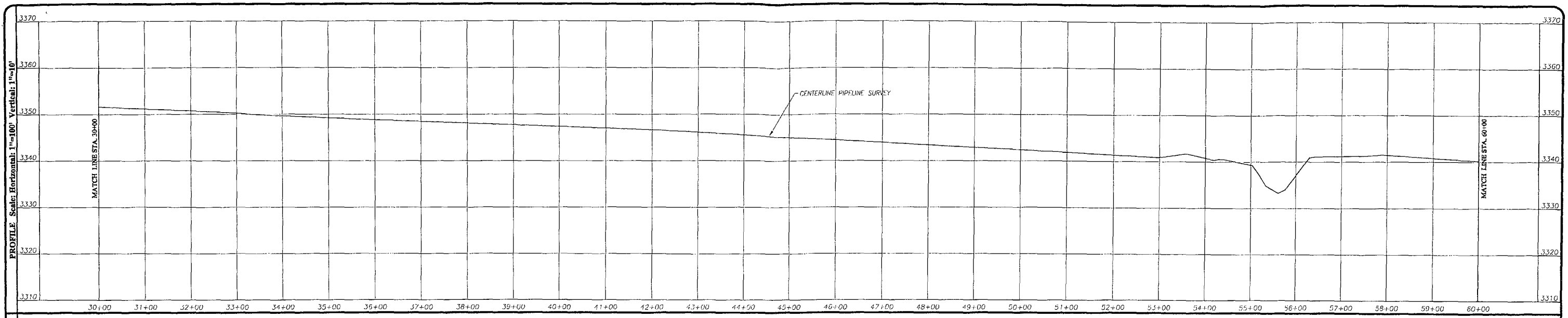
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 00 + 00 TO STA. 30 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	2 of 24
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

32+96 7' CHAIN LINK FENCE (3350.3')

33+90.1 P.I. 69°16'51" LT. (3349.8')

36+00 NATURAL GROUND (3348.9')

42+90 NATURAL GROUND (3346.7')

49+00 NATURAL GROUND (3343.4')

52+97 4-W BW FENCE LINE (3340.9')

53+69 NATURAL GROUND (3341.7')

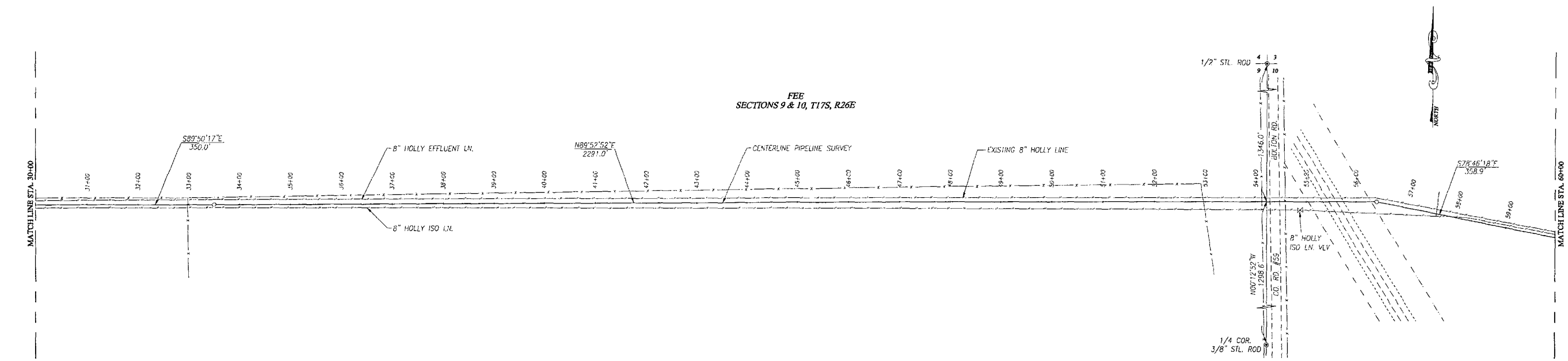
54+11 R.O.W. FENCE (3349.5')
54+22.2 SECTION LINE
54+29 C.L. CO. RD. #59 (3340.6')
EDDY CO. RD.
56+47 FENCE (3340.4')
56+04 TOP EAGLE DRAW (3339.4')
56+34 TOE EAGLE DRAW (3336.8')
56+61 C.L. EAGLE DRAW (3333.3')
56+75 TOE EAGLE DRAW (3333.9')

56+35 TOP EAGLE DRAW (3341.0')
56+41.1 P.I. 11°20'26" RT. (3341.1')

57+53 HOLLY BPL ISO (3341.7')
57+52 8" HOLLY BPL (ISO) (3341.5')

60+00 NATURAL GROUND (3340.0')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊙ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——e—— – DENOTES ELECTRIC LINE
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- ---------- – DENOTES EXISTING TOE WASH
- = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

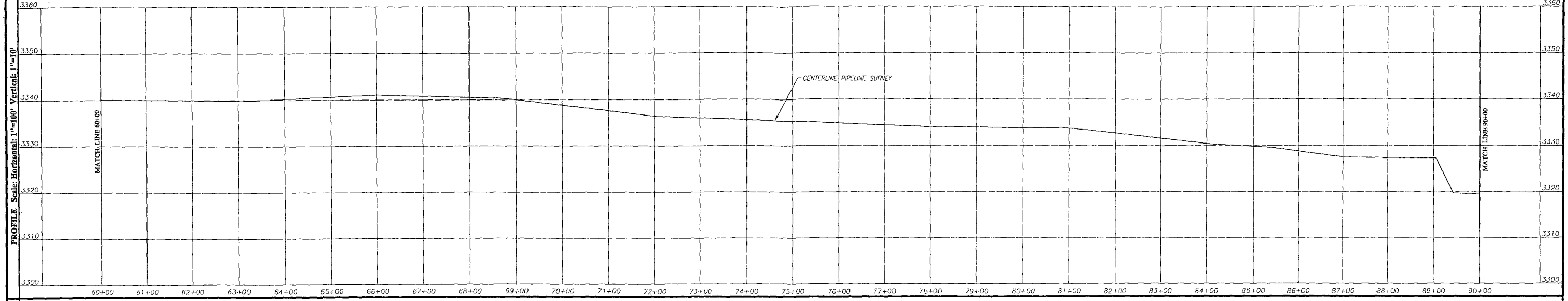
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 30 + 00 TO STA. 60 + 00

PROVIDING SURVEYING SERVICES SINCE 1945
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	3 of 24
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

60+00 NATURAL GROUND (3340.0')

62+10.4 P.I. 165°56'56" LT. (3339.8')

66+00 NATURAL GROUND (3341.6')

68+73 8" HOLLY BPL (ISO) (3340.3')
69+01 TRAIL ROAD (3340.0')

72+00 NATURAL GROUND (3336.4')

78+00 NATURAL GROUND (3334.9')

78+64 DOUBLE POLE O.H. ELEC. LN. (3334.0')

79+22.2 P.I. 60°05'32" RT. (3333.8')

80+65 5-W BP FENCE LN. (3333.5')
80+79 4-W ELEC. LN. (3333.9')

82+24.6 P.I. 07°56'30" RT. (3332.5')

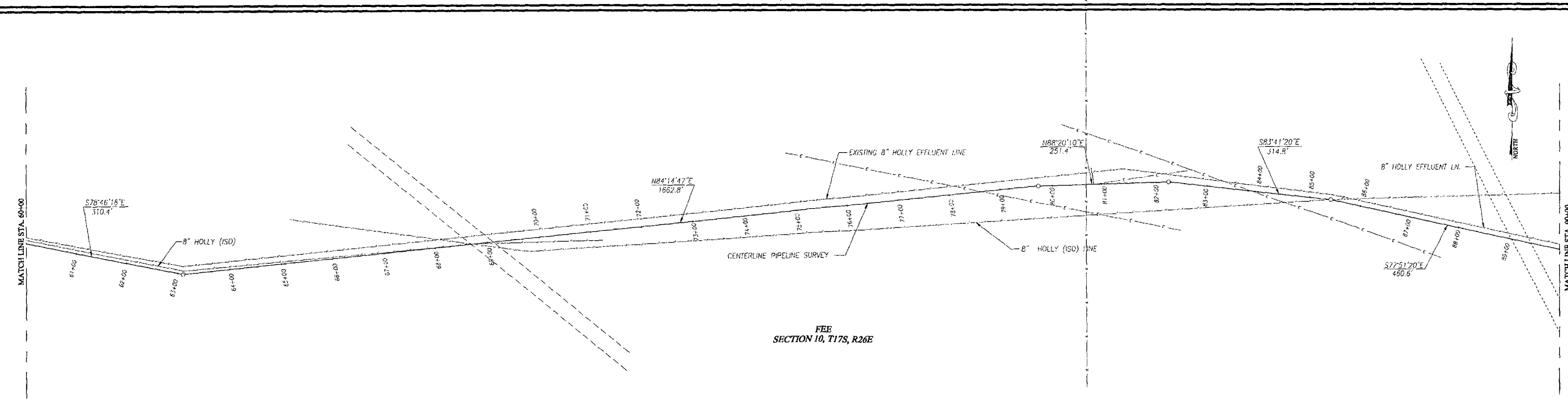
84+87 DOUBLE POLE O.H. ELEC. LN. (3330.6')
84+00 NATURAL GROUND (3330.4')

85+38.4 P.I. 05°30'00" RT. (3328.6')
87+00 8" HOLLY ISO BPL (3327.5')

88+05 TCP EAGLE DRAW W FNC. LN. (3327.3')
89+42 TOE EAGLE DRAW (3319.7')
89+77 C.L. EAGLE DRAW

90+00 NATURAL GROUND (3316.6')

PLAN VIEW - SCALE 1"=100'



FEE
SECTION 10, T17S, R26E

LEGEND

- ⊗ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——c—— – DENOTES ELECTRIC LINE
- ———— – DENOTES EXISTING PIPELINE BY OTHERS
- ——·——·—— – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 60 + 00 TO STA. 90 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240

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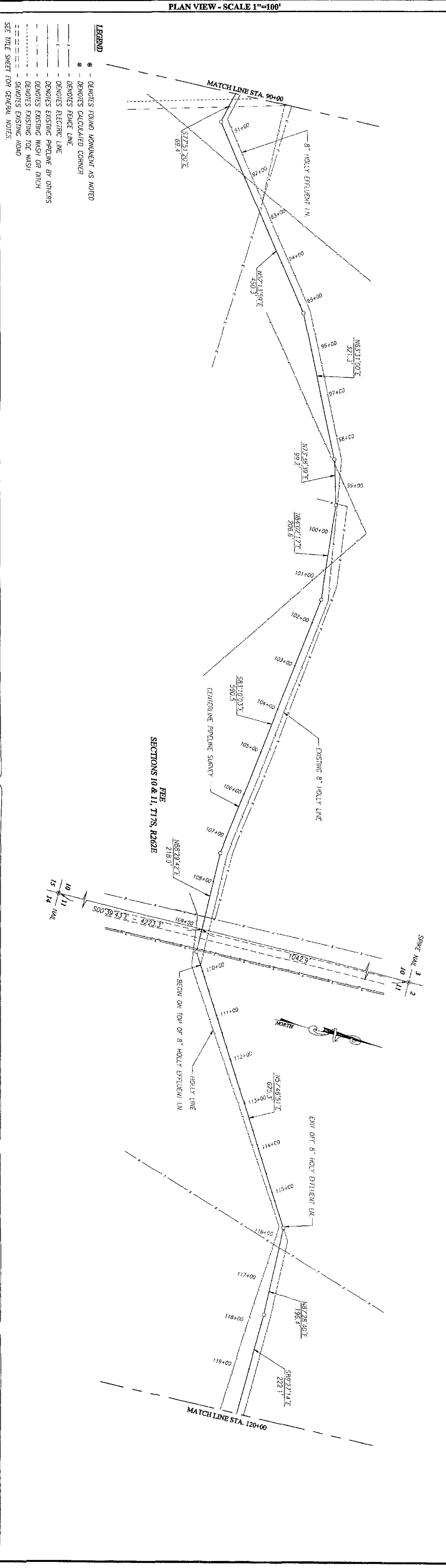
PLAN VIEW - SCALE 1"=100'



STATIONING

90+00 NATURAL GROUND (3319.6')
90+10 TOE EAGLE DRAW (3320.0')
90+39 TOP EAGLE DRAW (3326.6')
90+69.4 P.I. 49°54'41" LT. (3326.0')

91+93 8" HOLLY BPL (3326.0')
92+79 DOUBLE POLE O.H. ELEC. LN. (3325.9')

95+19.7 P.I. 11°17'01" RT. (3323.5')

96+00 NATURAL GROUND (3323.3')

98+41.0 P.I. 10°07'39" RT. (3322.8')
98+50 HOLLY BPL (3322.7')

99+37 5-W BW FENCE LN. (3322.3')
99+40.2 P.I. 10°23'38" RT. (3322.4')

100+80 HOLLY BPL (3321.9')

101+46.8 P.I. 12°47'40" RT. (3321.7')

102+00 NATURAL GROUND (3321.9')

107+37.3 P.I. 08°20'15" LT. (3322.6')

108+00 NATURAL GROUND (3322.8')
108+79 R.O.W. FENCE LINE (3321.2')
108+83 BURIED FIBER OPTIC CABLE (3320.7')
109+06.0 SECTION LINE
109+17 C.L. CO. RD. #229 (3319.8')
109+50 NEW MEXICO GAS BPL (3318.7')
109+52 4-W ELEC LN (3318.7')
109+56.2 P.I. 30°42'51" LT. (3318.7')
109+60 R.O.W. FNC. LN. (3318.7')
109+85 BEGIN ON TOP OF 8" HOLLY EFFLUENT LN. (3318.2')

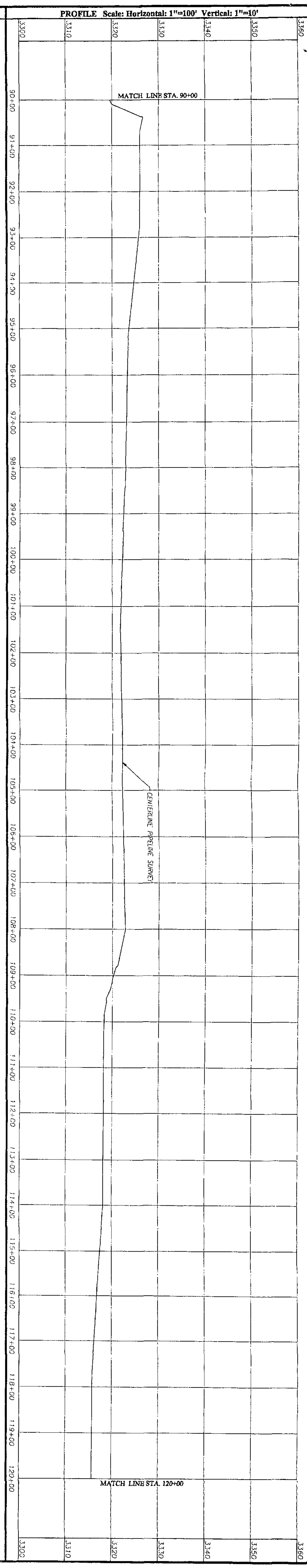
115+81.5 P.I. 29°41'49" RT. (3316.9') & EXIT OFF 8" HOLLY EFFLUENT LN.

116+26 5-W BW FNC. LN (3316.7')

117+77.9 P.I. 03°04'06" RT. (3315.8')

120+00 NATURAL GROUND (3315.8')

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 90 + 00 TO STA. 120 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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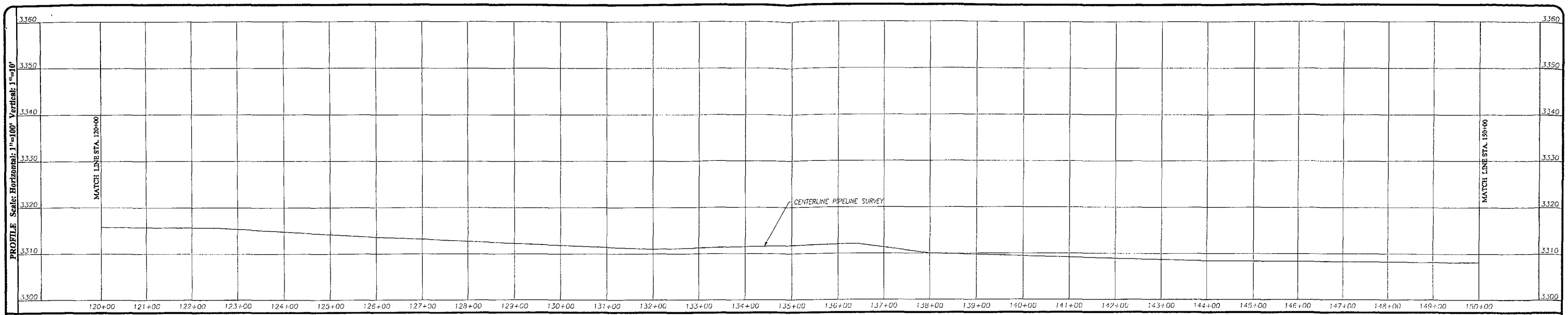
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

120+00 NATURAL GROUND (3315.8')

122+69.5 P.I. 03°44'58" RT (3315.5')

126+00 NATURAL GROUND (3311.9')

132+00 NATURAL GROUND (3311.6')

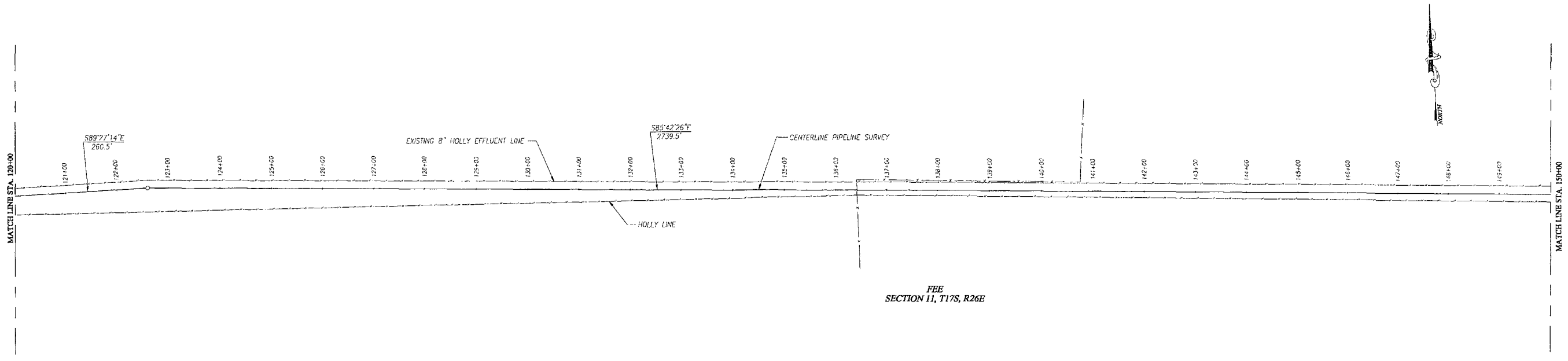
136+47 FNC LN @ CATTLE GUARD (3312.1')

138+00 NATURAL GROUND (3310.0')

144+00 NATURAL GROUND (3308.4')

150+00 NATURAL GROUND (3308.2')

PLAN VIEW - SCALE 1"=100'



FEE
SECTION 11, T17S, R26E

LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——E—— – DENOTES ELECTRIC LINE
- ——P/L—— – DENOTES EXISTING PIPELINE BY OTHERS
- – · – · – – DENOTES EXISTING WASH OR DITCH
- – – – – – – DENOTES EXISTING TOE WASH
- = = = = = = DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 120 + 00 TO STA. 150 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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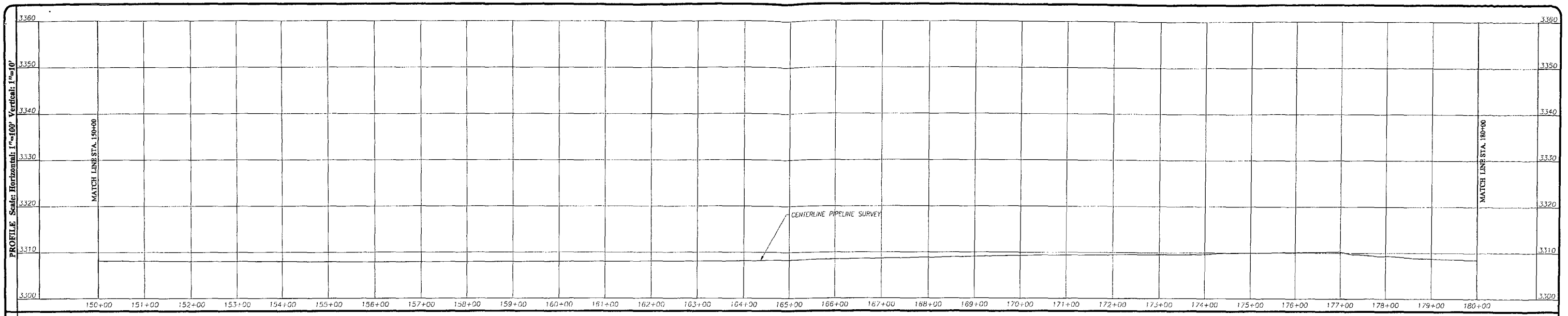
Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

156+00 NATURAL GROUND (3308.2')

161+42.5 P.I. 60°17'21" LT. (3309.1')

156+00 NATURAL GROUND (3307.9')

162+00 NATURAL GROUND (3308.0')

163+39.5 SECTION LINE

163+78 5-W BW FNC LN (3308.1')

168+00 NATURAL GROUND (3308.9')

170+45 5-W BW FNC LN. (3306.4')

174+00 NATURAL GROUND (3309.6')

174+29 DOUBLE POLE ELEC. LN (3309.9')

176+69 5-W BW FNC. LN (3310.2')

177+29.5 P.I. 55°11'54" RT. (3309.7')

177+44 HOLLY BPL (3309.6')

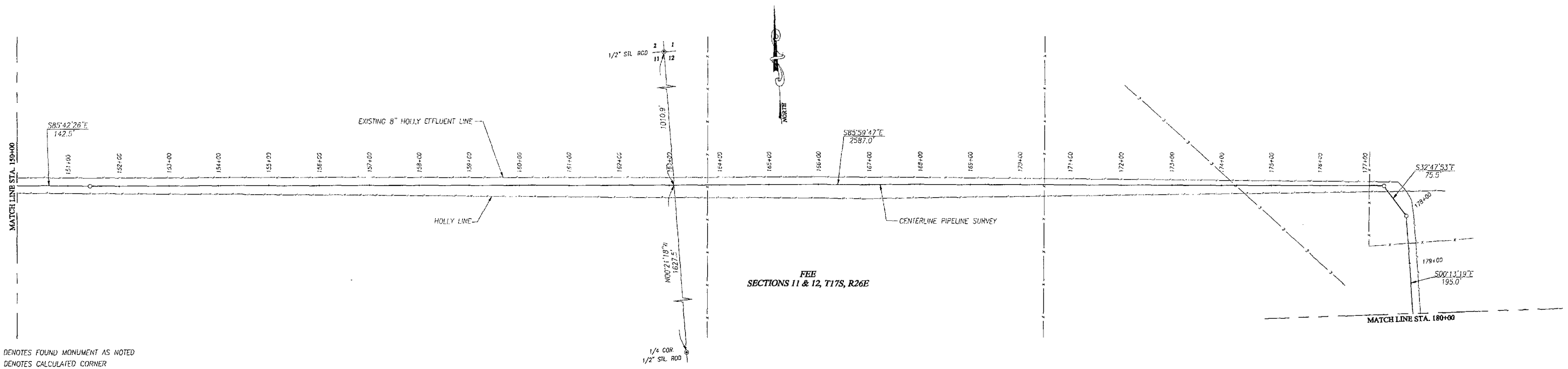
177+68 HOLLY BPL (3309.5')

178+09.9 P.I. 37°34'34" RT. (3309.4')

178+80 5-W BW FNC. LN. (3309.9')

180+00 NATURAL GROUND (3308.4')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊙ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——E—— – DENOTES ELECTRIC LINE
- ——/——/—— – DENOTES EXISTING PIPELINE BY OTHERS
- – · – · – – DENOTES EXISTING WASH OR DITCH
- – – – – – – DENOTES EXISTING TOE WASH
- = = = = = = DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 150 + 00 TO STA. 180 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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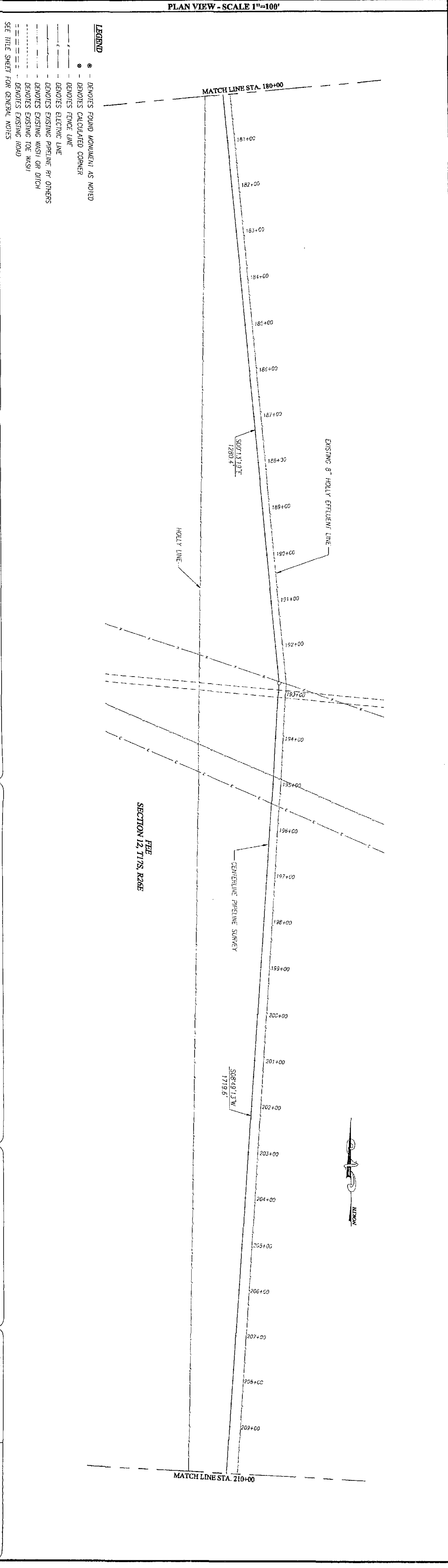
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

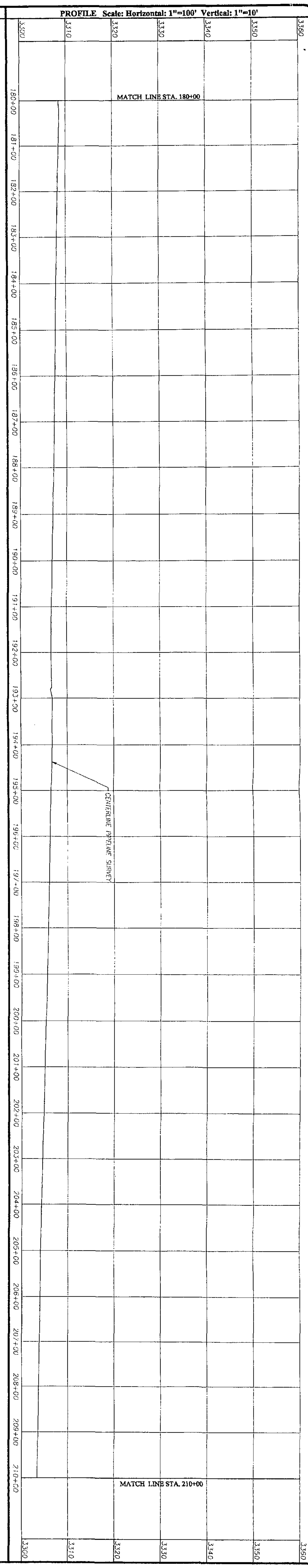
PLAN VIEW - SCALE 1"=100'



STATIONING

180+00 NATURAL GROUND (3308.4')
180+21 DOUBLE POLE O.H. ELEC. LN. (3308.6')
186+00 NATURAL GROUND (3307.5')
192+00 NATURAL GROUND (3306.5')
192+77 4-W BW FNC. LN. (3306.7')
192+20.4 P.I. 09°02'32" RT. (3306.4')
193+03 TRAIL ROAD (3306.9')
194+83 AGAVE BPL (3306.6')
195+42 DOUBLE POLE O.H. ELEC. LN. (3306.3')
198+00 NATURAL GROUND (3305.8')
204+00 NATURAL GROUND (3304.3')
210+00 NATURAL GROUND (3303.4')

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

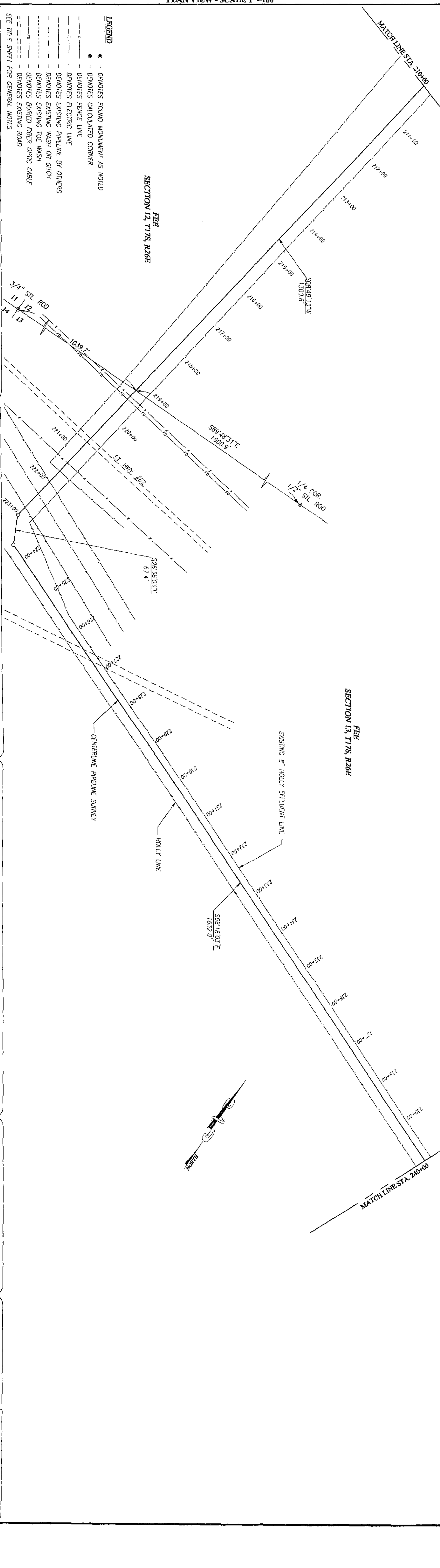
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 180 + 00 TO STA. 210 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No.:	10.11.1545	Sheet No.:	8 of 24
Survey Date:	10/14/10	CAD Dwg By:	IA
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PLAN VIEW - SCALE 1"=100'



STATIONING

210+00 NATURAL GROUND (3303.4')

216+00 NATURAL GROUND (3302.6')

219+23.7 SECTION LINE
219+41 R.O.W. FNC. LN. (3302.3')
219+43 BURIED FIBER OPTIC CABLE (3302.3')
220+67.8 C.L. HWY. #82 (3309.0')
221+40 R.O.W. FENCE LN. (3303.4')

221+67 HOLLY BPL (3301.9')
221+99 HOLLY BPL (3302.6')
222+36 HOLLY BPL (3303.4')
222+77 HOLLY BPL (3303.2')

223+00.6 P.I. 35°25'16" LT. (3303.1')
223+68.0 P.I. 41°40'00" LT. (3303.4')

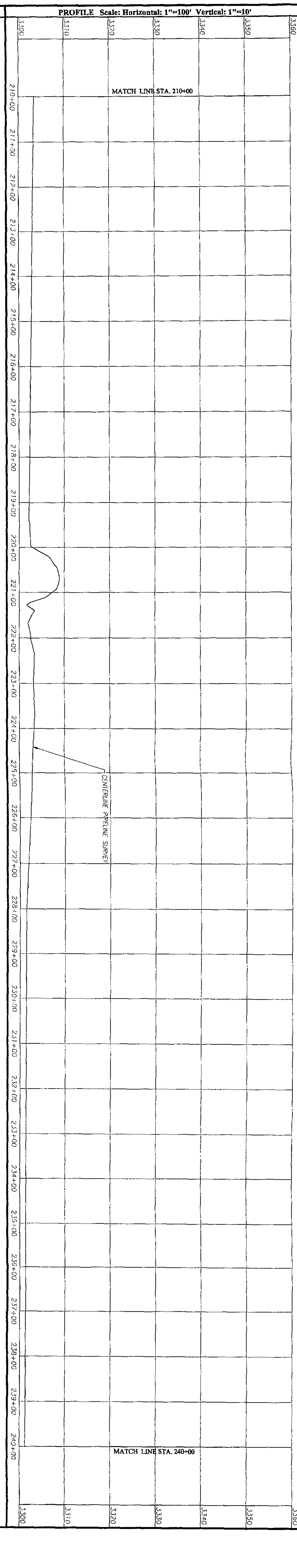
226+59 TRAIL ROAD (3302.1')

228+00 NATURAL GROUND (3301.4')

234+00 NATURAL GROUND (3301.3')

240+00 NATURAL GROUND (3301.2')

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



No. | Rev. By: | Chk'd By: | REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 210 + 00 TO STA. 240 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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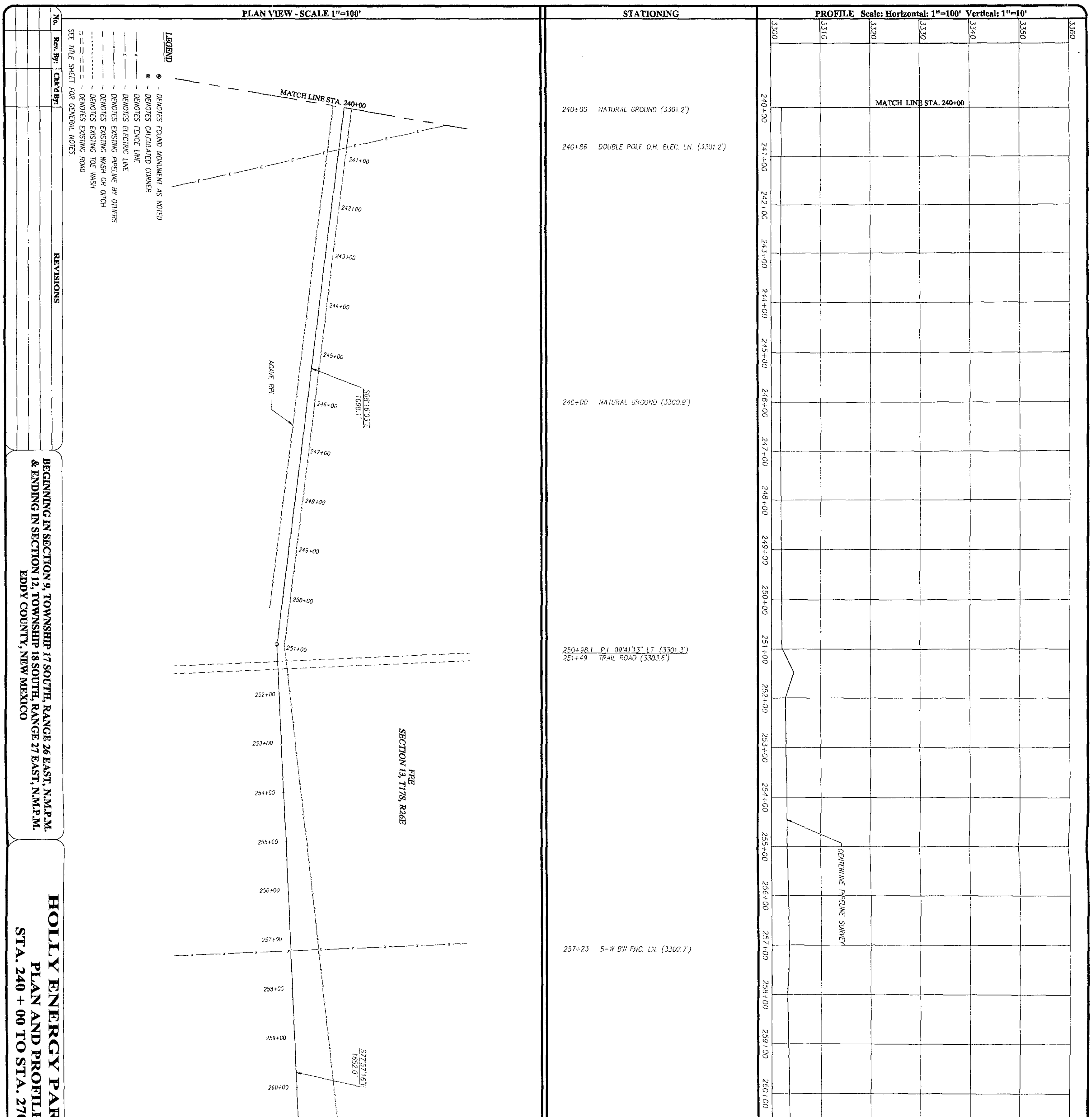
Scale: 1" = 100'   100 0 100 200 FEET


PLAN VIEW - SCALE 1"=100'
STATIONING
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'
LEGEND
- DENOTES FOUND MONUMENT AS NOTED
- DENOTES CALCULATED CORNER
- DENOTES FENCE LINE
- DENOTES ELECTRIC LINE
- DENOTES EXISTING PIPELINE BY OTHERS
- DENOTES EXISTING WASH OR DITCH
- DENOTES EXISTING TOE WASH
- DENOTES EXISTING ROAD
SEE TITLE SHEET FOR GENERAL NOTES.
MATCH LINE STA. 240+00
AGAVE RPL
FEE
SECTION 13, T17S, R26E
EXISTING 8" HOLLY EFFLUENT LINE
NORTH
R26E
R27E
MATCH LINE STA. 270+00
240+00 NATURAL GROUND (3301.2')
240+86 DOUBLE POLE O.H. ELEC. LN. (3301.2')
246+00 NATURAL GROUND (3300.9')
250+98.1 P.I. 09°41'13" LT (3301.3')
251+49 TRAIL ROAD (3303.6')
257+23 5-W BW FNC. LN. (3302.7')
264+00 NATURAL GROUND (3303.4')
267+50.1 P.I. 13°56'20" LT (3303.5')
268+66 5-W BW FNC. LN. (3303.7')
268+67.0 SECTION LINE
270+00 NATURAL GROUND (3304.5')
CENTERLINE PIPELINE SURVEY
3300
3310
3320
3330
3340
3350
3360
No. | Rev. By: | Chk'd By: | REVISIONS
BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 240 + 00 TO STA. 270 + 00
PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117
Work Order No: 10.11.1545
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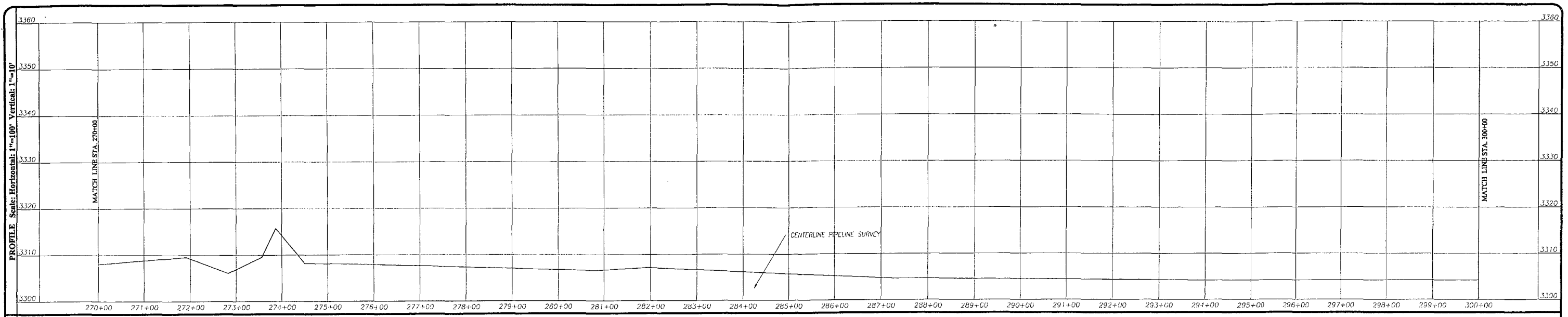
CAD Dwg By: LA
File No.: E-3336
Scale: 1" = 100'
100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

270+00 NATURAL GROUND (3304.5')

271+91 WEST TOP BANK PECOS RIVER (3306.1')

272+82 EAST TOP BANK PECOS RIVER (3302.6')

273+56 NATURAL GROUND (3308.1')
273+86 NATURAL GROUND (3312.3')
274+49 NATURAL GROUND (3304.7')

275+15 8" HOLLY EFFLUENT LN

276+00 NATURAL GROUND (3304.5')

280+78.8 P.I. 35°56'58" RT (3293.3')
281+92 8" HOLLY EFFLUENT LN

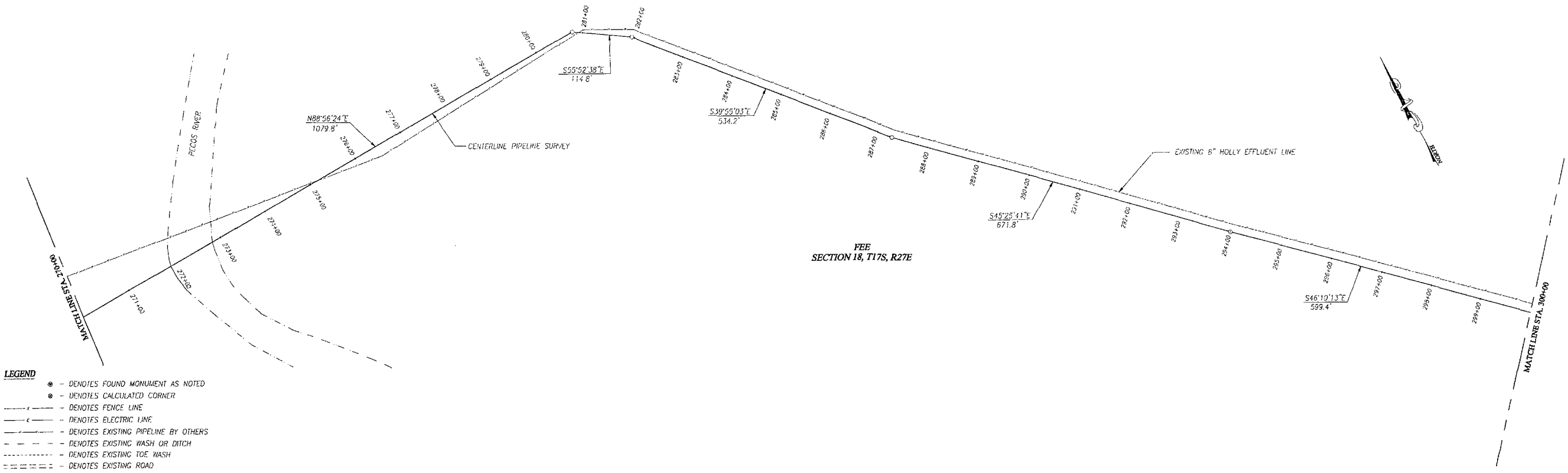
281+94.6 P.I. 45°37'35" RT (3293.2')

287+28.8 P.I. 05°30'38" LT (3301.2')
288+00 NATURAL GROUND (3301.2')

294+56.6 P.I. 30°43'35" LT (3302.8')

300+00 NATURAL GROUND (3300.8')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ◉ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——e—— – DENOTES ELECTRIC LINE
- ——/——— – DENOTES EXISTING PIPELINE BY OTHERS
- – – – – – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- ======= – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 270 + 00 TO STA. 300 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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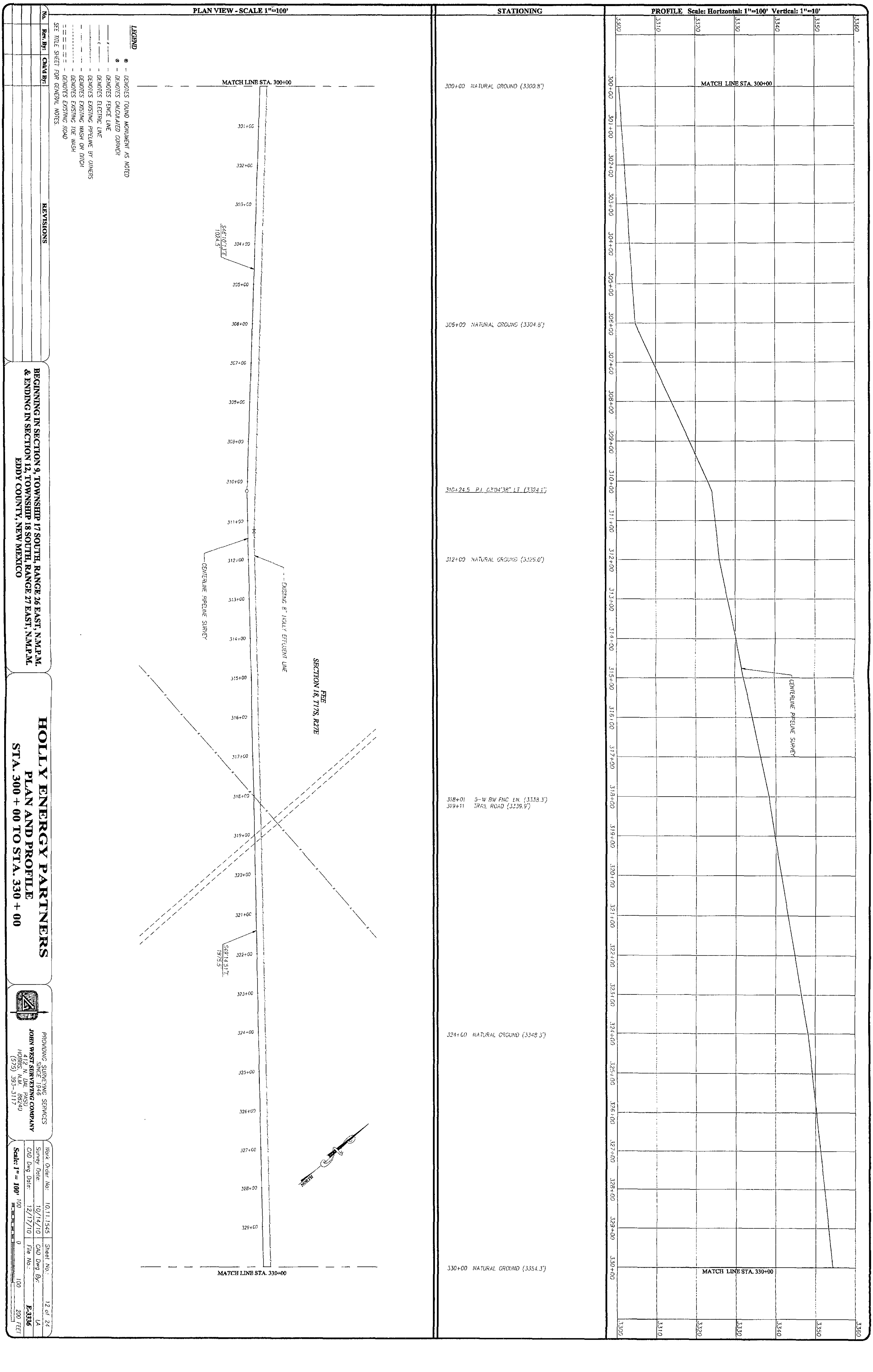
Scale: 1" = 100'	100 0 100 200 FEET		



PLAN VIEW - SCALE 1"=100'
STATIONING
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'
LEGEND
⊛ - DENOTES FOUND MONUMENT AS NOTED
⊚ - DENOTES CALCULATED CORNER
— x — DENOTES FENCE LINE
— E — DENOTES ELECTRIC LINE
DENOTES EXISTING PIPELINE BY OTHERS
DENOTES EXISTING WASH OR DITCH
DENOTES EXISTING TOE WASH
DENOTES EXISTING ROAD
SEE TITLE SHEET FOR GENERAL NOTES.
No. Rev By: Chk'd By: REVISIONS
MATCH LINE STA. 300+00
MATCH LINE STA. 330+00
S46°10'LT 1024.5'
S59°14'LT 1975.5'
CENTERLINE PIPELINE SURVEY
EXISTING 8" HOLLY EFFLUENT LINE
FEE SECTION 18, T17S, R27E
NORTH
300+00 NATURAL GROUND (3300.8')
306+00 NATURAL GROUND (3304.8')
310+24.5 P.I. 03°04'38" LT (3324.1')
312+00 NATURAL GROUND (3325.0')
318+01 5-W BW FNC. LN. (3338.3')
319+11 TRAIL ROAD (3339.9')
324+00 NATURAL GROUND (3348.3')
330+00 NATURAL GROUND (3354.3')
3300 3310 3320 3330 3340 3350 3360
BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 300 + 00 TO STA. 330 + 00
PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117
Work Order No: 10.11.1545
Survey Date: 10/14/10
CAD Dwg Date: 12/17/10
Sheet No: 12 of 24
CAD Dwg By: LA
File No.: E-336
Scale: 1" = 100'
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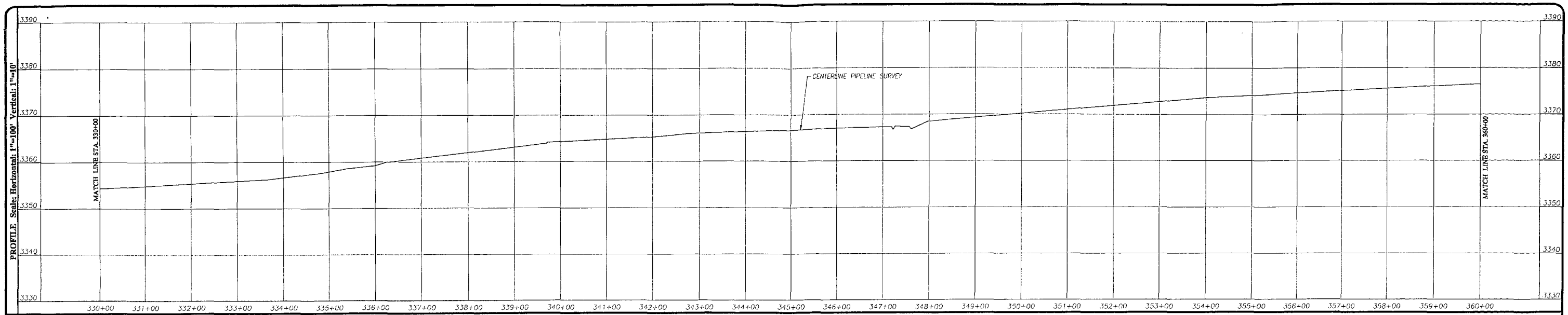
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

330+00 NATURAL GROUND (3354.3')

333+68.8 P.I. 02°25'45" LT. (3356.2')

334+69 HOLLY BPL (3357.1')
335+41 HOLLY BPL (3359.5')

336+00 NATURAL GROUND (3359.2')
336+26 2-W ELEC. LN. (3359.9')
336+29 4-W BW FNC. LN.
336+29.2 N-S SECTION LINE

339+59.0 E-W SECTION LINE
339+70 4-W BW FNC LN. (3363.9')
339+72 4-W ELEC LN. (3364.2')

342+00 NATURAL GROUND (3365.3')

342+74.2 P.I. 01°11'47" RT. (3366.0')

345+39 NATURAL GROUND (3367.2')

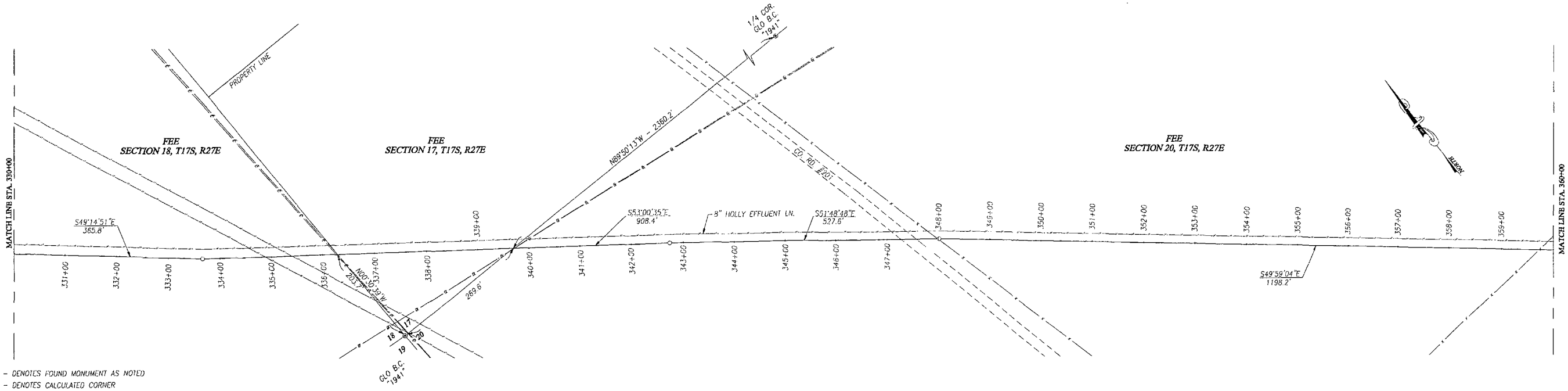
347+12.5 C.L. CO. RD. #201 (3367.1')
347+69 4-W BW FNC LN. (3364.5')
348+01.8 P.I. 01°29'24" RT. (3368.8')

354+00 NATURAL GROUND (3373.6')

359+74 4-W BW FNC LN (3376.4')

360+00 NATURAL GROUND (3376.5')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ----x---- – DENOTES FENCE LINE
- ----e---- – DENOTES ELECTRIC LINE
- – DENOTES EXISTING PIPELINE BY OTHERS
- – DENOTES EXISTING WASH OR DITCH
- – DENOTES EXISTING TOE WASH
- – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

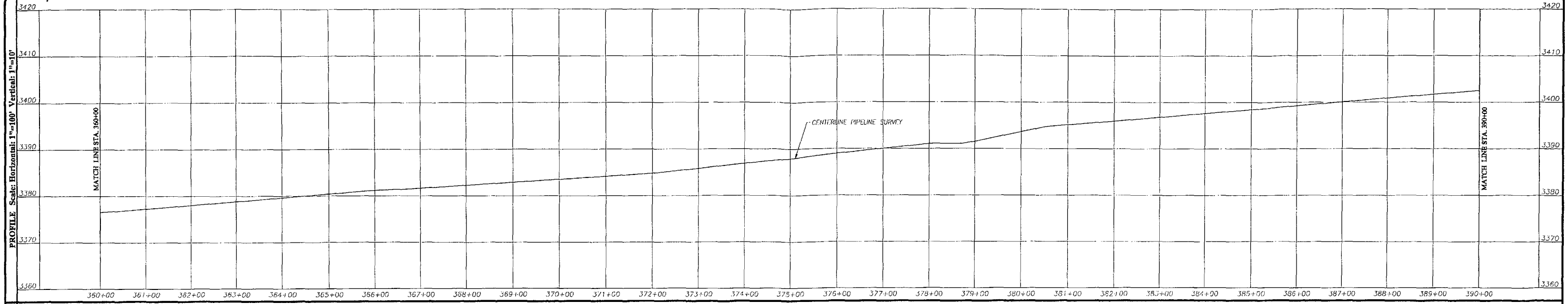
BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 330 + 00 TO STA. 360 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	13 of 24
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/17/10	File No.:	E-3336
Scale: 1" = 100'	100 0 100		200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

360+00 NATURAL GROUND (3376.6')

360+45 TRAIL ROAD (3378.6')

360+72.5 PROPERTY LINE

366+61.8 P.I. 012°14" LT. (3381.4')

372+00 NATURAL GROUND (3384.8')

378+01 4" STL SMLS. P/L (3391.1')

378+73 UCW BPL (3391.1')

379+03 TRAIL ROAD (3391.6')

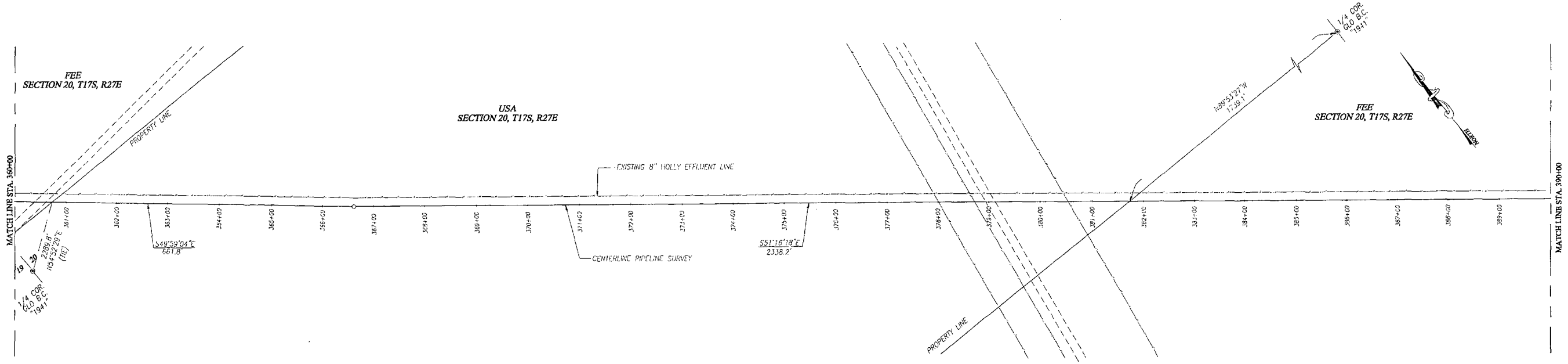
385+54 4" STL P/L (3394.6')

387+27 PROPERTY LINE

384+00 NATURAL GROUND (3397.6')

390+00 NATURAL GROUND (3402.5')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ◉ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——E—— – DENOTES ELECTRIC LINE
- ——————— – DENOTES EXISTING PIPELINE BY OTHERS
- – · – · – – DENOTES EXISTING WASH OR DITCH
- ---------- DENOTES EXISTING TOE WASH
- ═══ – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES

No.	Rev. By:	Chk'd By:	REVISIONS

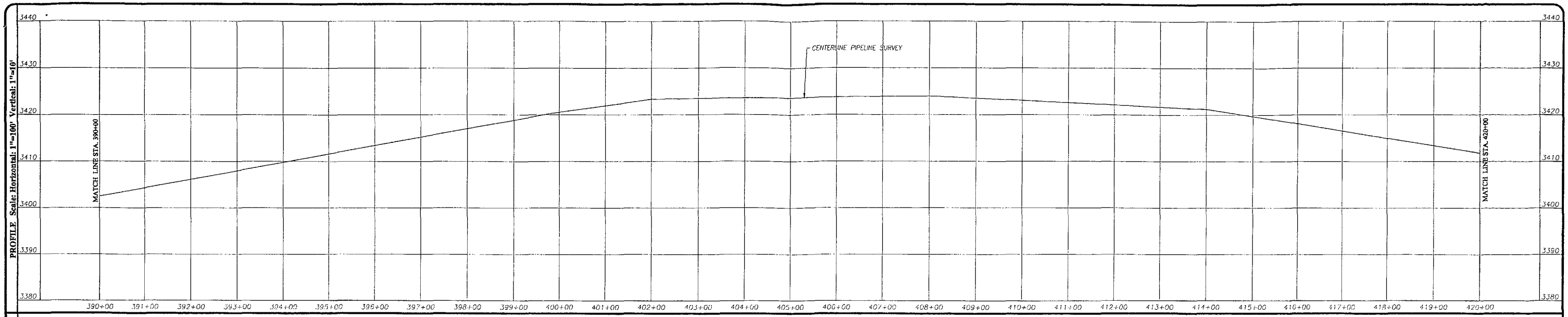
BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 360 + 00 TO STA. 390 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	14 of 24
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/17/10	File No.:	E-3336
Scale: 1" = 100'	100 0 100 200 FEET		

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATTONING

390+00 NATURAL GROUND (3402.5')

396+03 NATURAL GROUND (3413.4')

399+81 TRAIL ROAD (3420.3')

402+02 NATURAL GROUND (3423.4')

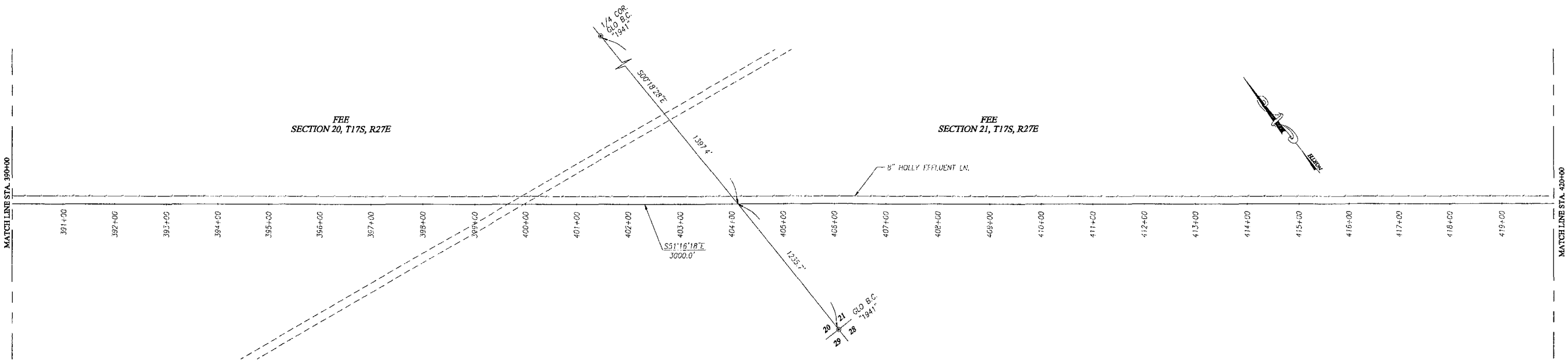
404+11.6 N-S SECTION LINE

408+00 NATURAL GROUND (3424.0')

414+03 NATURAL GROUND (3421.2')

420+00 NATURAL GROUND (3411.8')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ● – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——c—— – DENOTES ELECTRIC LINE
- ——/——/—— – DENOTES EXISTING PIPELINE BY OTHERS
- ——·——·—— – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS

PLAN AND PROFILE

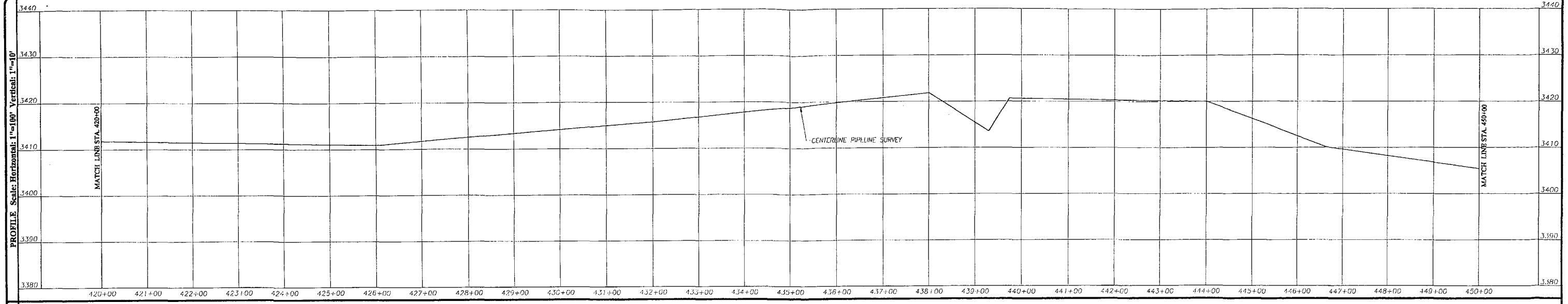
STA. 390 + 00 TO STA. 420 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	15 of 24
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

420+00 NATURAL GROUND (3411.8')

423+97.0 E-W SECTION LINE

426+00 NATURAL GROUND (3411.0')

432+00 NATURAL GROUND (3415.8')

438+01 TOP EDGE WASH (3421.8')

439+30 C.L. WASH (3413.6')

439+74 TOP EDGE WASH (3420.7')

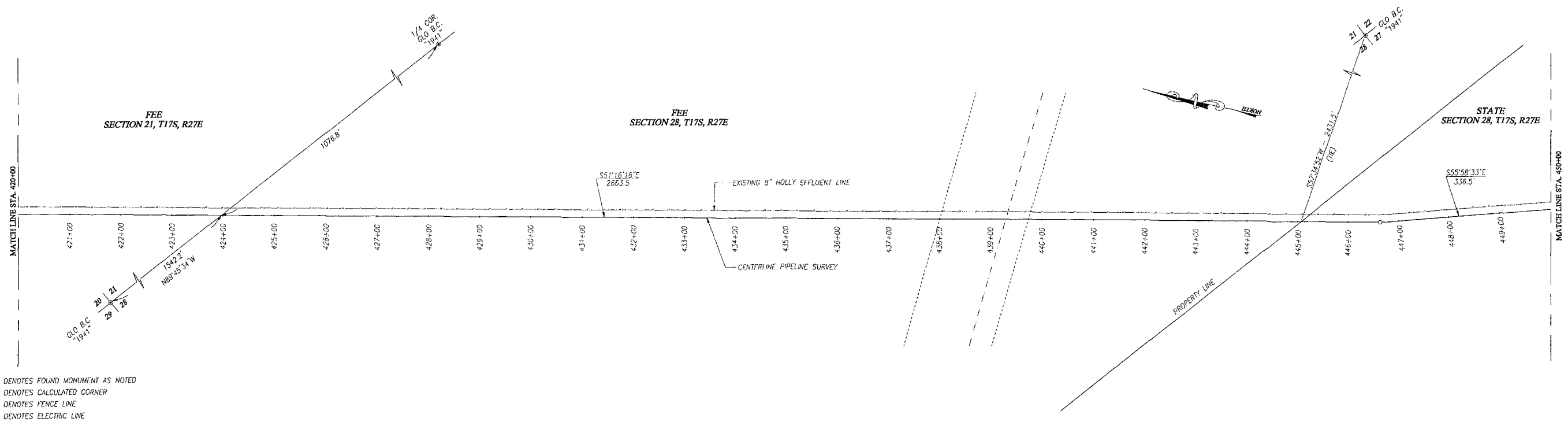
444+00 NATURAL GROUND (3430.0')

445+05.7 PROPERTY LINE

446+63.5 P.I. 043°25'17" LT. (3410.1')

450+00 NATURAL GROUND (3405.1')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊙ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——E—— – DENOTES ELECTRIC LINE
- ——— – DENOTES EXISTING PIPELINE BY OTHERS
- – · – · – – DENOTES EXISTING WASH OR DITCH
- – – – – – – DENOTES EXISTING TOE WASH
- = = = = = = DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS

PLAN AND PROFILE

STA. 420 + 00 TO STA. 450 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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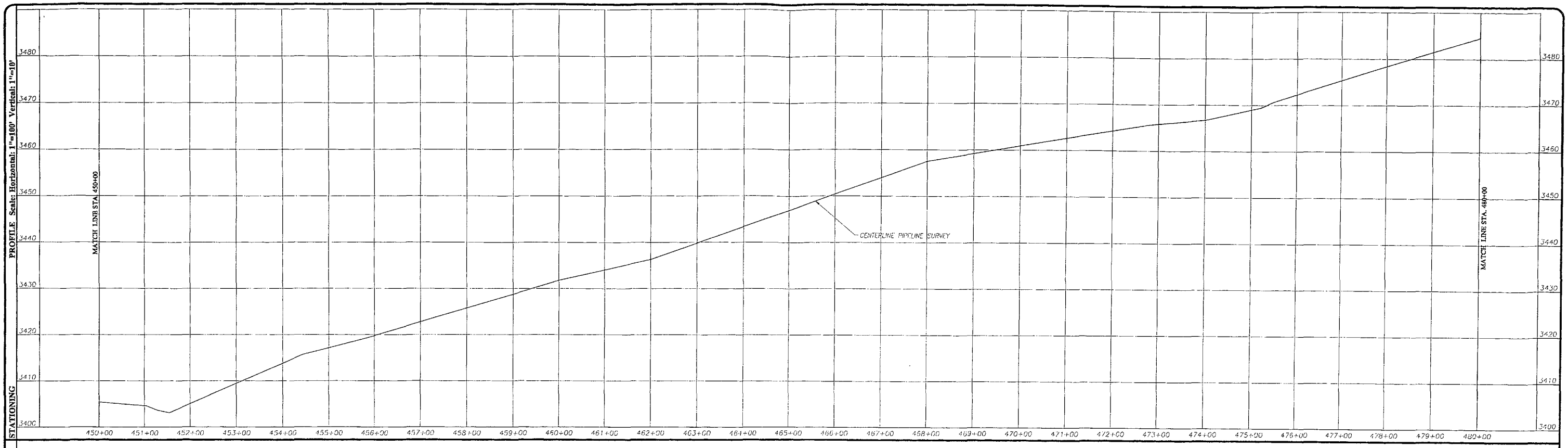
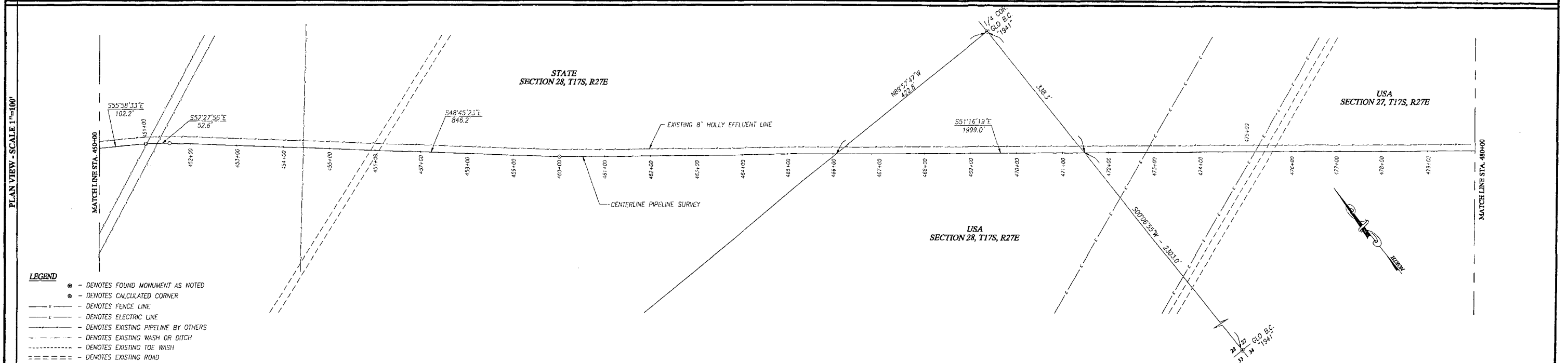
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——c—— – DENOTES ELECTRIC LINE
- ——p—— – DENOTES EXISTING PIPELINE BY OTHERS
- – · – · – – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS

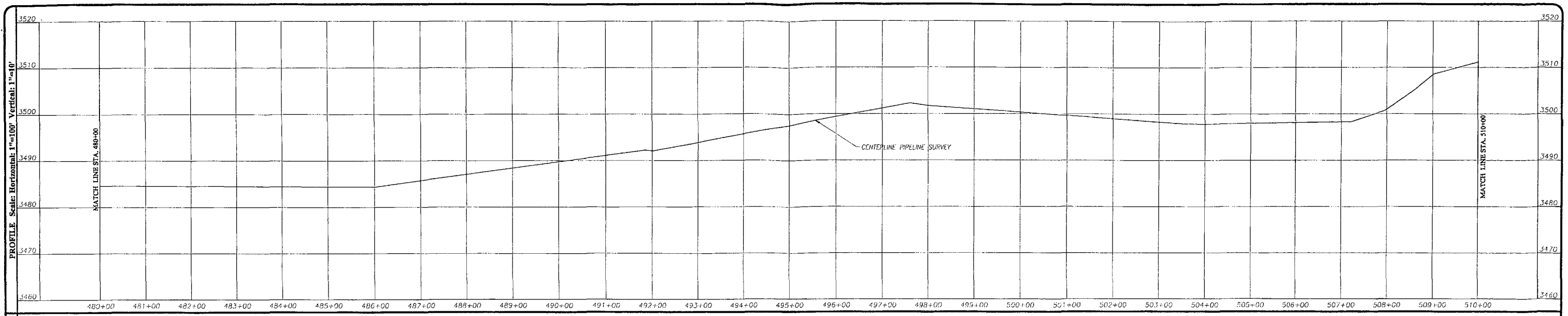
PLAN AND PROFILE

STA. 450 + 00 TO STA. 480 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	17 of 24
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/17/10	File No.:	E-3336
Scale: 1" = 100'	100 0 100 200 FEET		

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

480+00 NATURAL GROUND (3484.6')

486+00 NATURAL GROUND (3484.4')

491+84 (2) 4" POLY SURF F/A (3492.2')
492+00 NATURAL GROUND (3492.1')

497+61 AGAVE BFL (3502.3')
498+00 NATURAL GROUND (3501.7')

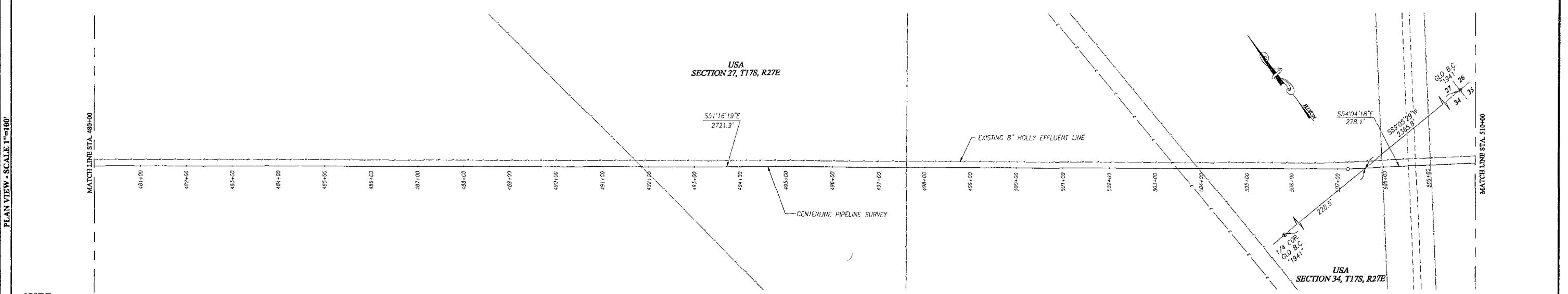
503+48 4-W O/H ELEC LN (3498.0')
503+94 FENCEPOST BFL (3497.8')
504+00 NATURAL GROUND (3497.8')

507+21.9 S.L. 0247'59" E.L. (3498.3')
507+59.9 E-W SECTION LINE
507+97 3" POLY SURF P/L (3500.8')

508+62 TRAIL ROAD (3505.3')
509+02 (2) 3" POLY SURF P/L (3508.8')

510+00 NATURAL GROUND (3511.2')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊙ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——e—— – DENOTES ELECTRIC LINE
- ——•—•—— – DENOTES EXISTING PIPELINE BY OTHERS
- – – – – – – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = = DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

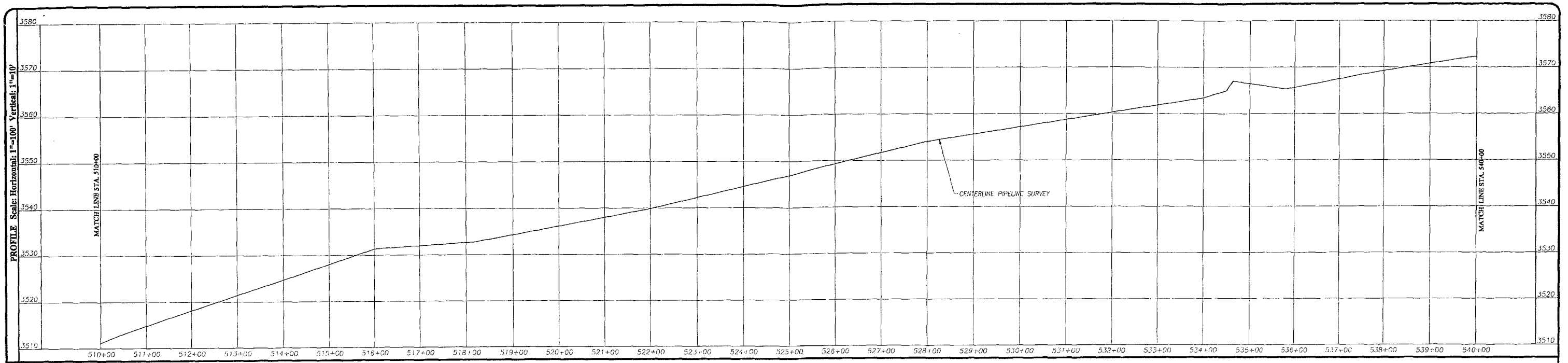
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 480 + 00 TO STA. 510 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	18 of 24
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

510+00 NATURAL GROUND (3511.2')

510+52.6 P.I. 052°20'06" RT (3513.2')

516+00 NATURAL GROUND (3531.5')

518+18.1 P.I. 093°13'14" LT (3532.8')

522+00 NATURAL GROUND (3539.6')

526+02 NATURAL GROUND (3554.1')

534+00 NATURAL GROUND (3565.5')

534+50.1 P.I. 172°07'55" RT (3564.9')

534+64 4-W ELEC. LN (3567.0')

535+20.8 P.I. 151°24'11" LT (3565.4')

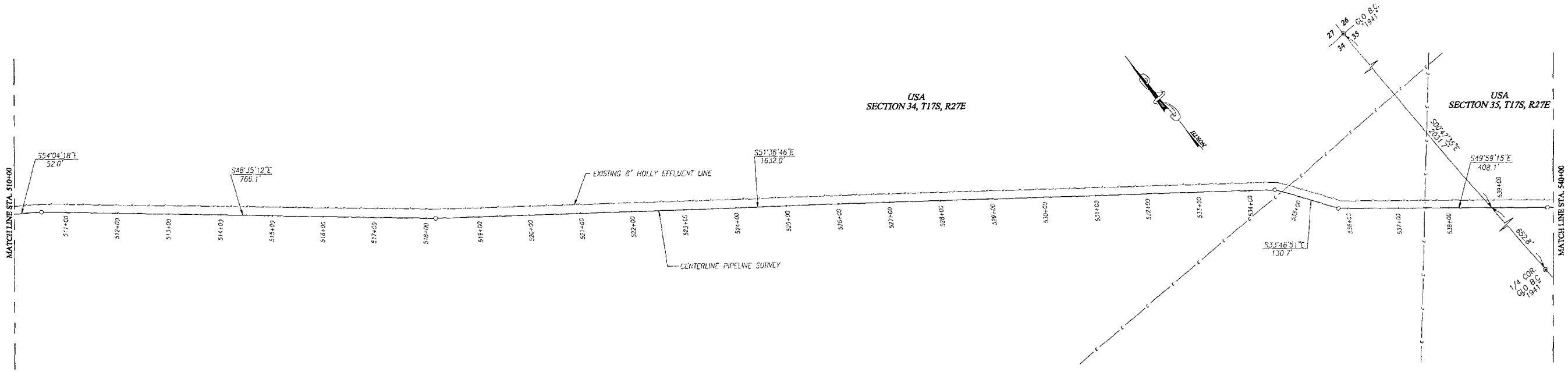
537+53 4-W ELEC. LN (3568.4')

538+82.1 N-S SECTION LINE

539+88.9 P.I. 014°35'42" LT (3572.2')

540+00 NATURAL GROUND (3572.2')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——E—— – DENOTES ELECTRIC LINE
- ——P—— – DENOTES EXISTING PIPELINE BY OTHERS
- – · – · – – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS

PLAN AND PROFILE

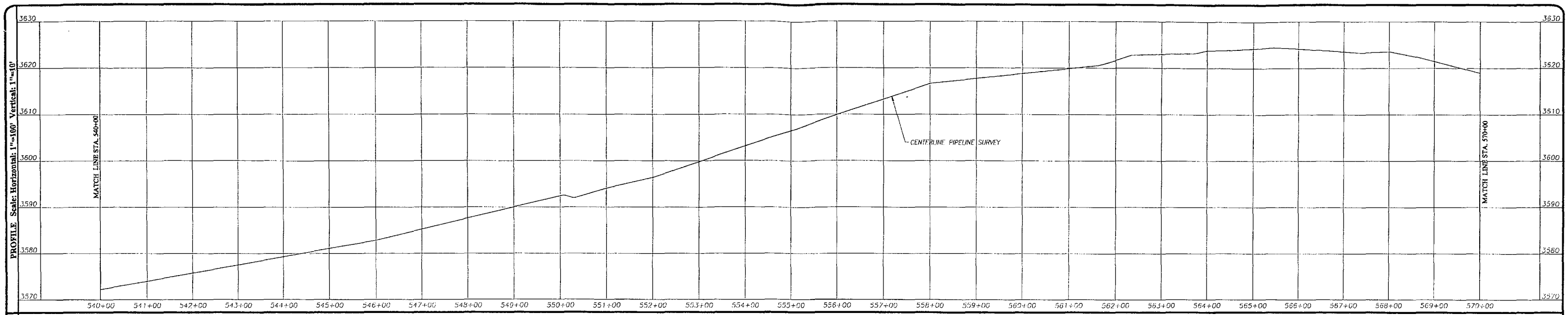
STA. 510 + 00 TO STA. 540 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	19 of 24
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

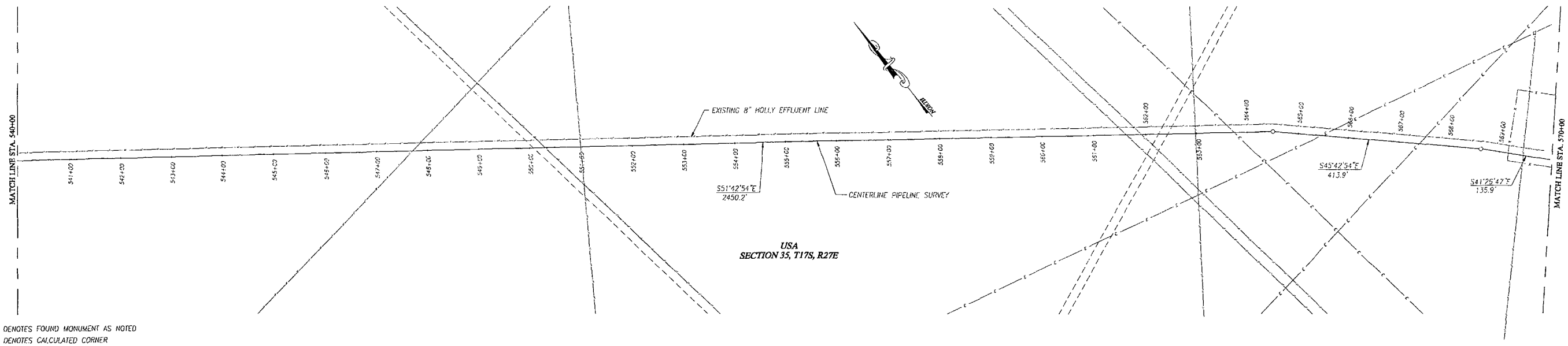
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

540+00 NATURAL GROUND (3572.2')
546+00 NATURAL GROUND (3582.9')
547+71 NAVAJO BPL (3586.9')
550+07 LEASE ROAD (3592.6')
550+30 (2) 3" POLY SURF P/L (3591.9')
551+60 NM GAS BPL (3594.1')
552+00 NATURAL GROUND (3596.4')
556+80 NATURAL GROUND (3616.7')
561+63 (4) 3" POLY SURF P/L (3630.5')
561+92 CPW BPL (3621.4')
562+34 LEASE ROAD (3622.8')
562+98 (2) 3" POLY SURF P/L (3623.0')
563+74 2-W ELEC LN (3623.2')
564+00 NATURAL GROUND (3623.9')
564+50.2 P.I. DEFLECT RT (3623.8')
565+46 4-W ELEC LN (3624.5')
567+41 4-W ELEC LN (3623.3')
568+00 NATURAL GROUND (3623.5')
568+84.1 P.I. DEFLECT RT (3622.1')
569+48 HOLLY BPL (3619.6')
570+00 NATURAL GROUND (3619.0')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊗ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ---x--- – DENOTES FENCE LINE
- ---e--- – DENOTES ELECTRIC LINE
- ---p--- – DENOTES EXISTING PIPELINE BY OTHERS
- – DENOTES EXISTING WASH OR DITCH
- – DENOTES EXISTING TOE WASH
- – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 540 + 00 TO STA. 570 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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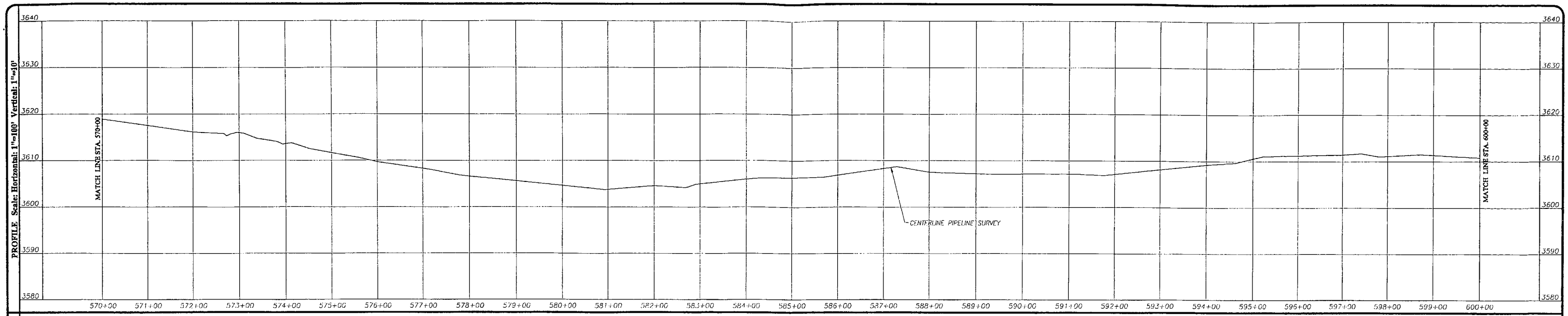
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

570+60 NATURAL GROUND (3618.0')

572+00 NATURAL GROUND (3616.1')

572+95.0 CO RD #225 (3615.1')
573+43.6 CO RD #226 (3614.0')

575+57 (2) 2" POLY SURF. P/L (3610.6')
576+03 NATURAL GROUND (3609.7')

576+65 OPEN WATER BPL (3608.5')
577+16 (4) 3" POLY SURF. P/L(3608.1')

577+81 (4) 3" POLY SURF. P/L (3606.8')
578+04 3" POLY SURF. P/L (3606.6')

580+93 DUKE BPL (3603.7')

582+00 NATURAL GROUND (3604.6')

582+69 LEASE ROAD (3604.2')
582+76 3-W ELEC. LN. (3604.4')
582+90 2" POLY SURF. P/L (3604.9')

584+39 2-W ELEC. LN. (3607.3')

584+45 2" STL SURF. P/L (3605.4')
585+67 LEASE ROAD & 4-W ELEC LN (3606.4')

587+29 4-W ELEC. LN. (3608.7')

588+00 NATURAL GROUND (3607.6')
587+97.1 E-W SECTION LINE

589+28 KINDER MORGAN BPL (3607.1')

590+32 CENTURION BPL (3607.2')
591+17.2 P.I. 10°00'00" LT. (3607.2')

591+77 LEASE ROAD (3606.9')

594+00 NATURAL GROUND (3609.2')

594+52 3-W ELEC LN (3609.7')

595+23 2" POLY SURF. P/L (3611.1')

596+29.5 P.I. 09°53'54" RT. (3611.4')

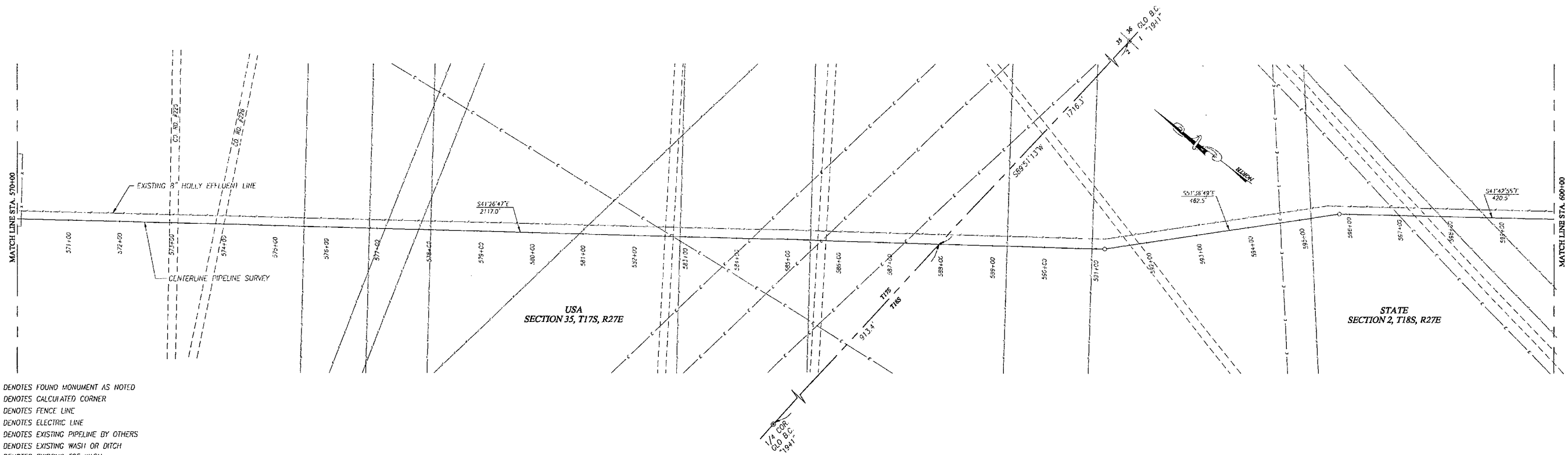
597+00 4-W ELEC. LN. (3611.4')

597+42 LEASE ROAD (3611.7')
597+82 DCP BPL (3611.6')

598+72 DCP BPL (3611.6')

600+00 NATURAL GROUND (3610.8')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊗ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——E—— – DENOTES ELECTRIC LINE
- ——P—— – DENOTES EXISTING PIPELINE BY OTHERS
- – · – · – – DENOTES EXISTING WASH OR DITCH
- – – – – – – DENOTES EXISTING TOE WASH
- = = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS

PLAN AND PROFILE

STA. 570 + 00 TO STA. 600 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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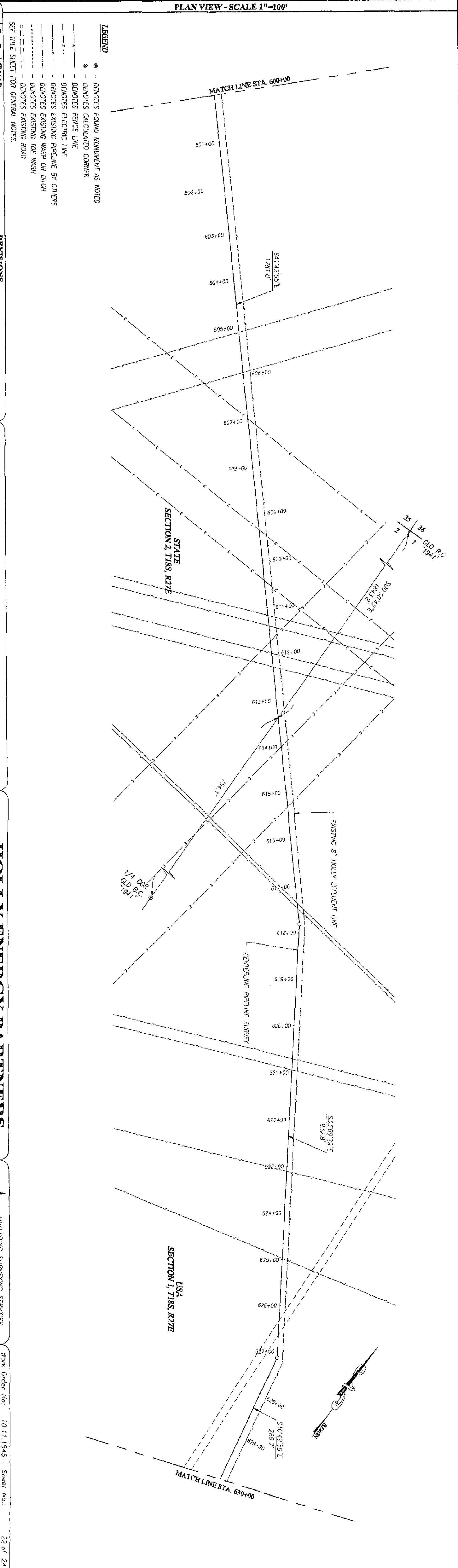
Scale: 1" = 100' 100 0 100 200 FEET

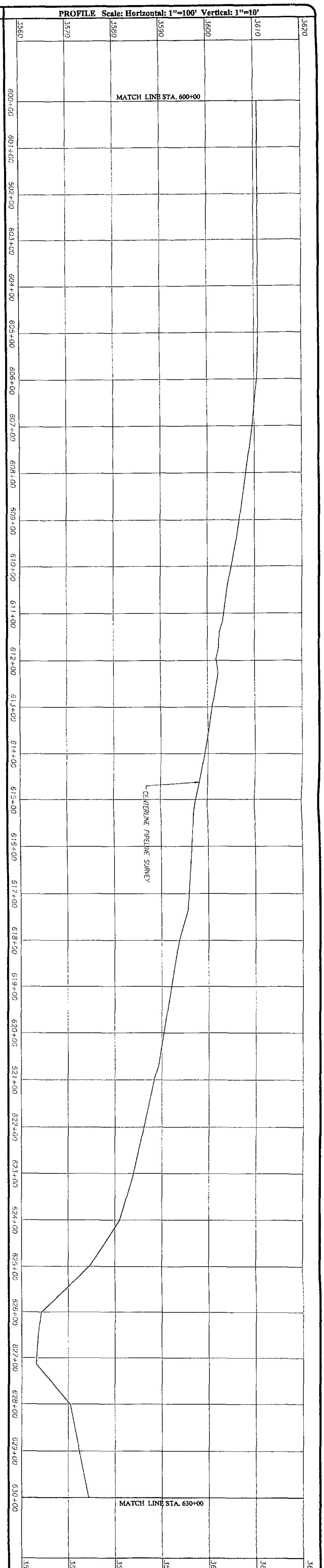
PLAN VIEW - SCALE 1"=100'



STATIONING

600+00 NATURAL GROUND (3610.8')
605+09 CENTURION BPL (3610.9')
605+95 DCP BPL (3610.6')
606+00 NATURAL GROUND (3610.5')
606+95 4-W ELEC. LN. (3609.6')
609+33 DOUBLE POLE ELEC. LN. (3606.3')
610+42 4-W ELEC. LN. (3604.3')
611+17 TRANSWESTERN BPL (3603.2')
611+40 TRANSWESTERN BPL (3602.5')
611+72 4-W ELEC. LN. (3602.4')
611+98 TRANSWESTERN BPL (3601.8')
612+27 TRANSWESTERN BPL (3602.3')
613+36.5 N-S SECTION LINE
614+00 4-W ELEC. LN. (3599.3')
615+31 4-W ELEC. LN. (3597.0')
617+36 CITY OF CARLSBAD BPL (3595.6')
617+47 FRONTIER BPL (3595.3')
617+81.6 P.I. 08°33'26" RT. (3594.2')
618+00 NATURAL GROUND (3593.7')
620+71 BP AMERICAN BPL (3589.3')
620+95 BP AMERICAN BPL (3588.5')
623+10 CENTURION BPL (3583.7')
624+00 NATURAL GROUND (3581.0')
624+97 CENTURION BPL (3574.7')
626+00 NATURAL GROUND (3564.2')
626+49 TRAIL ROAD (3563.5')
627+13.8 P.I. 22°19'30" RT. (3563.1')
628+00 NATURAL GROUND (3570.5')
630+00 NATURAL GROUND (3574.3')

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



LEGEND

- ● – DENOTES FOUND MONUMENT AS NOTED
- ● – DENOTES CALCULATED CORNER
- – DENOTES FENCE LINE
- – DENOTES ELECTRIC LINE
- – DENOTES EXISTING PIPELINE BY OTHERS
- – DENOTES EXISTING WASH OR DITCH
- – DENOTES EXISTING TOE WASH
- – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

REVISIONS

No.	Rev. By:	Chk'd By:

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 600 + 00 TO STA. 630 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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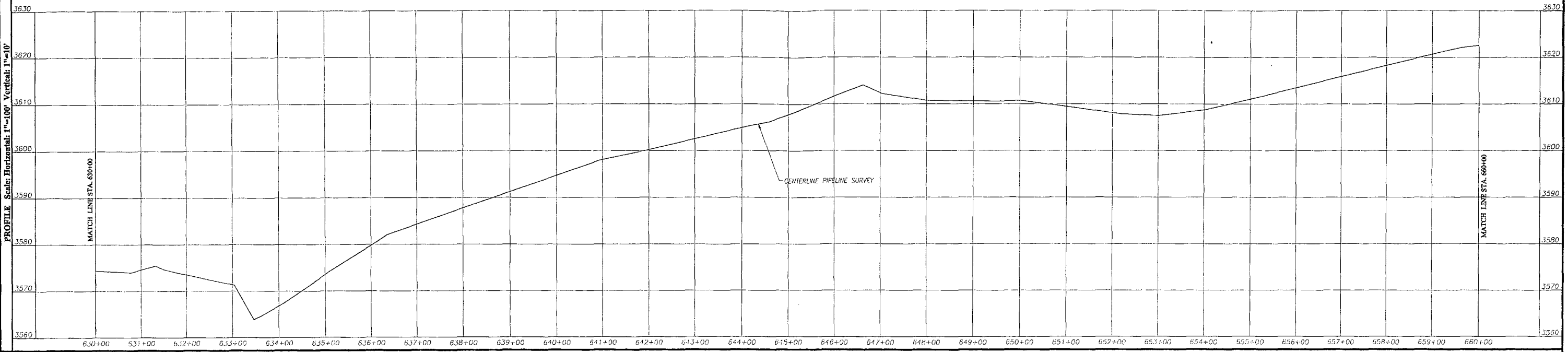
Scale: 1" = 100' 100 0 100 200 FEET

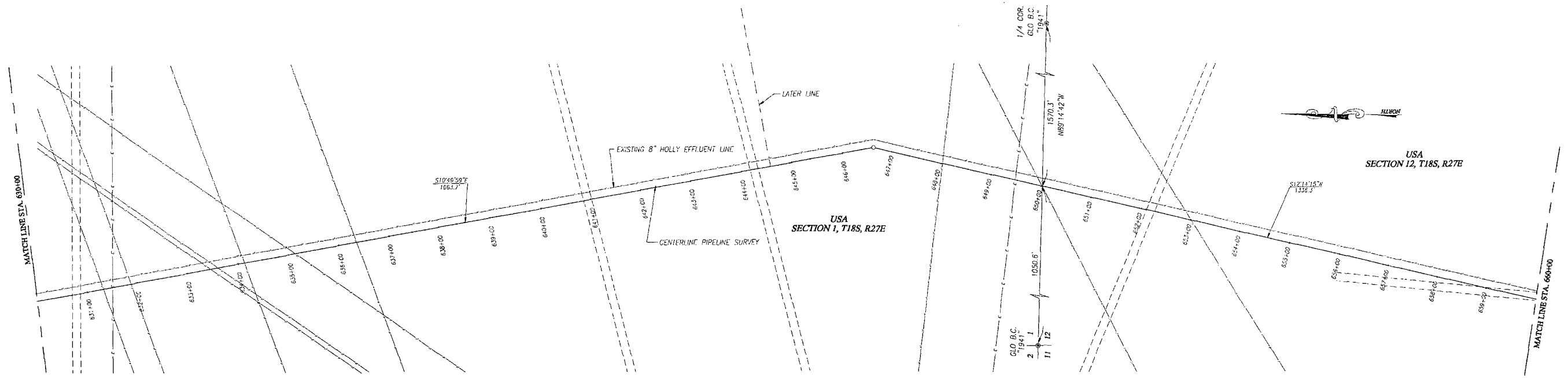
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

630+03 NATURAL GROUND (3574.3')
630+78 LEASE ROAD (3574.9')
631+32 3" STL SURF P/L (3575.5')
631+51 4-W ELEC LN (3574.8')
631+88 HOLLY BPL (3573.8')
633+00 NATURAL GROUND (3571.3')
633+46 OCP BPL (3563.9')
633+60 OCP BPL (3561.5')
634+12 CENTURION BPL (3567.5')
635+13 SP AMERICAN BPL (3574.4')
636+00 NATURAL GROUND (3579.9')
636+35 CENTURION BPL (3582.1')
640+94 LEASE ROAD (3598.0')
642+00 NATURAL GROUND (3600.5')
644+25 TRAIL ROAD (3605.5')
644+57.5 LATERAL LINE LEFT (2606.1')
645+63.7 P.I. 23°04'14" BL (3614.0')
648+02 SP AMERICAN BPL (3610.6')
649+48 4-W ELEC LN (3610.6')
650+91 OCP BPL (3610.7')
650+91.8 E-W SECTION LINE
652+19 LEASE ROAD (3607.9')
653+06 8" STL SURF P/L (3607.5')
654+60 NATURAL GROUND (3608.8')
659+35 LEASE ROAD (3622.6')
660+00 NATURAL GROUND (3623.6')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——e—— – DENOTES ELECTRIC LINE
- ——/——/—— – DENOTES EXISTING PIPELINE BY OTHERS
- –·–·–·– – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS

PLAN AND PROFILE

STA. 630 + 00 TO STA. 660 + 00

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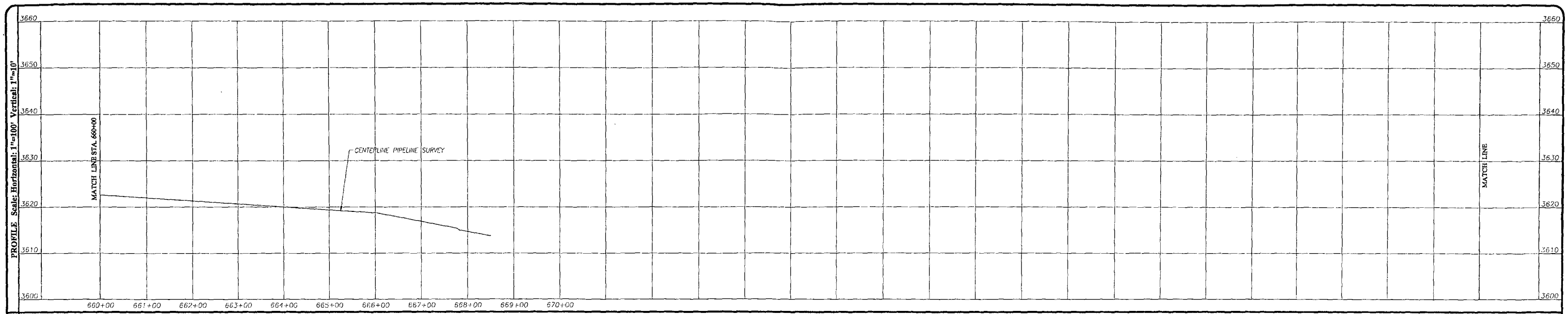
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

660+00 NATURAL GROUND (3622.6')

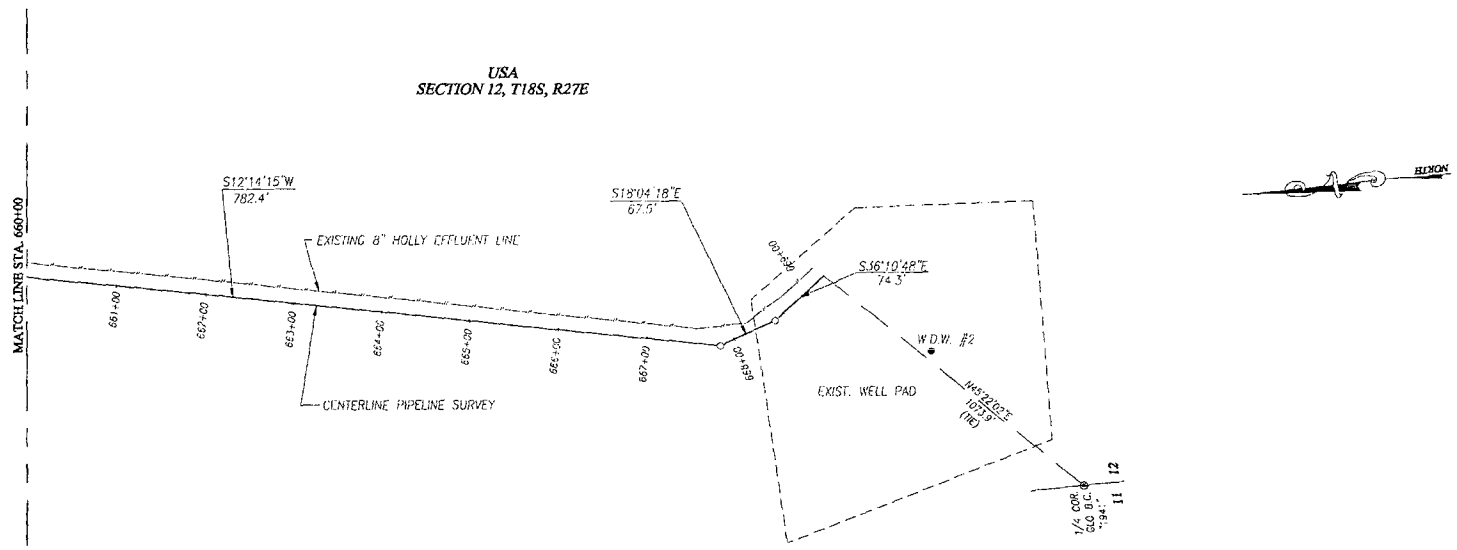
665+06 NATURAL GROUND (3619.7')

667+82.4 P.I. 30°18'33" LT. (3615.0')

668+48.9 P.I. 45°56'30" LT. (3613.8')

669+24.2 END SURVEY @ EAST EFFLUENT B/L (3612.3')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ◉ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——e—— – DENOTES ELECTRIC LINE
- ——/——/—— – DENOTES EXISTING PIPELINE BY OTHERS
- – ·—·—· – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 660 + 00 TO STA. 669 + 24.2

PROVIDING SURVEYING SERVICES SINCE 1946
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412 N. DAL PASO
HOBBS, N.M. 88240

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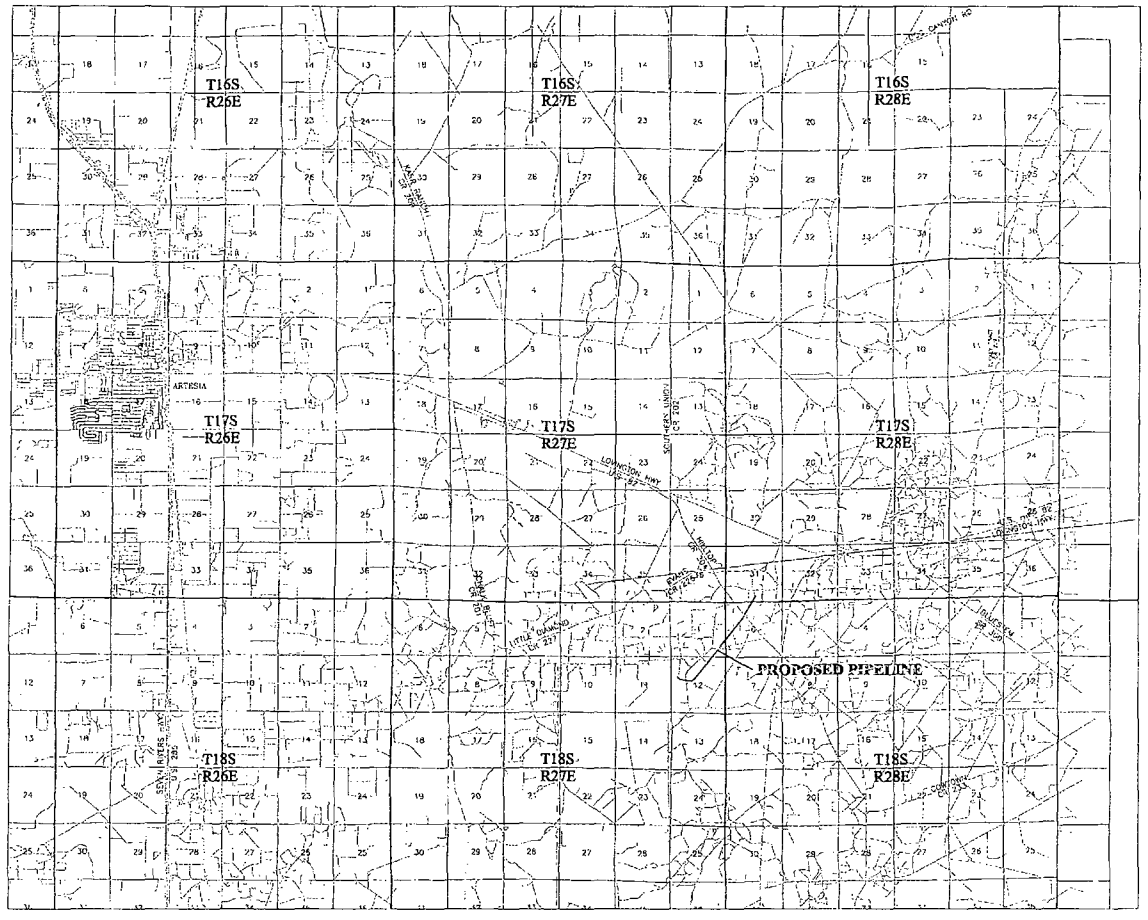
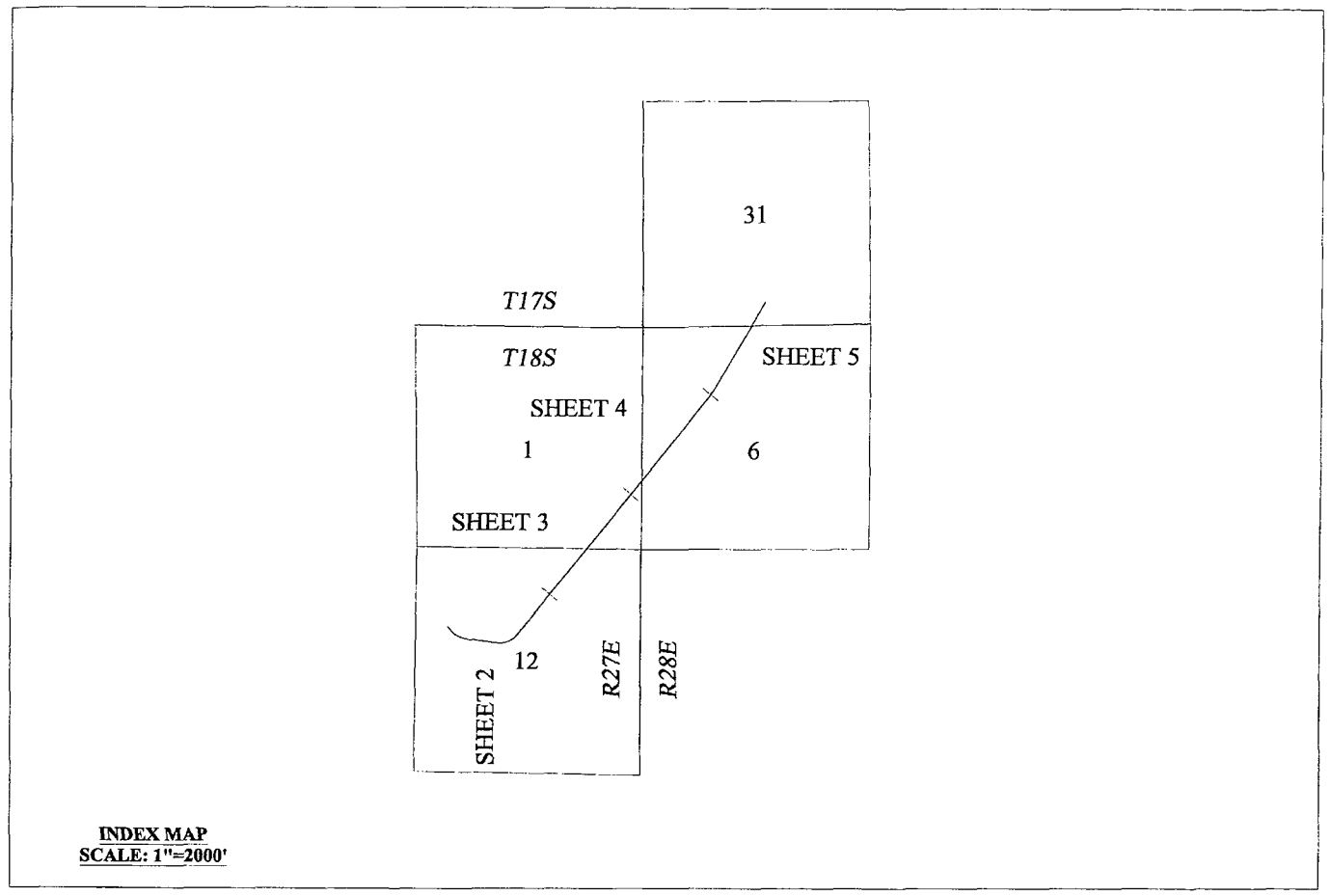


VICINITY MAP
NOT TO SCALE



INDEX MAP
SCALE: 1"=2000'

LEGEND AND GENERAL NOTES:

⊗ -- DENOTES FOUND MONUMENT AS NOTED
⊗ – DENOTES CALCULATED CORNER
—— x —— – DENOTES FENCE LINE
—— E —— – DENOTES ELECTRIC LINE
———— – DENOTES EXISTING PIPELINE BY OTHERS
– · – · – – DENOTES EXISTING WASH OR DITCH
= = = = = – DENOTES EXISTING ROAD

GENERAL NOTES:

1) BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

2) REFER TO INDIVIDUAL PLATS SUBMITTED BY JOHN WEST SURVEYING COMPANY.

3) UTILITY LOCATIONS SHOWN ARE FROM OBSERVED SURFACE EVIDENCE. ACTUAL LOCATIONS SHOULD BE VERIFIED.

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EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 00 + 00 TO STA. 115 + 15.7

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
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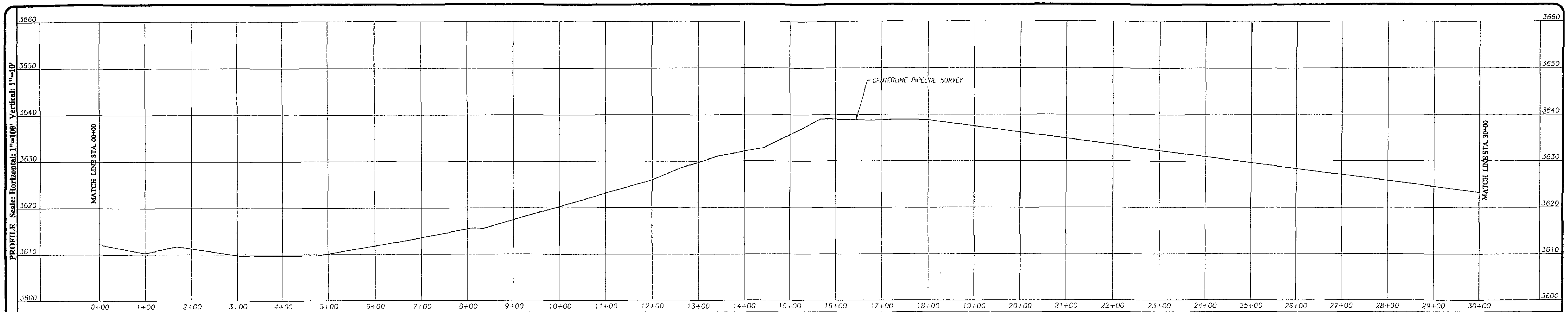
Scale: 1" = 100' 100 0 100 200 FEET

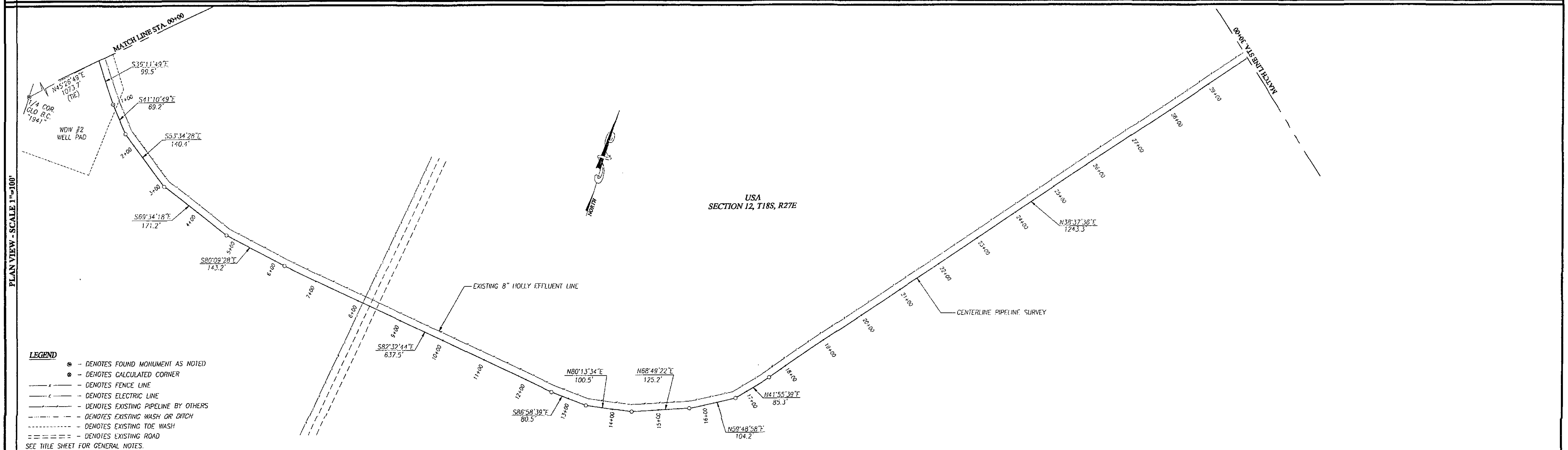
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

0+00 BEGIN SURVEY @ 8" STL. LINE (3612.2')
0+99.5 P.I. 04°55'00" LT. (3610.3')
1+88.7 P.I. 12°23'39" LT. (3611.7')
3+09.1 P.I. 15°59'50" LT. (3609.6')
4+80.3 P.I. 10°35'10" LT. (3609.8')
6+23.5 P.I. 02°21'16" LT. (3612.2')
8+11 DCP BPL (3615.7')
8+35 LEASE ROAD (3615.6')
12+61.0 P.I. 04°25'55" LT. (3628.5')
13+41.5 P.I. 12°47'47" LT. (3631.1')
14+42.0 P.I. 11°24'12" LT. (3632.6')
12+00 NATURAL GROUND (3625.9')
15+67.2 P.I. 09°00'24" LT. (3639.1')
16+71.4 P.I. 17°53'19" LT. (3638.8')
17+56.7 P.I. 03°18'03" LT. (3639.0')
18+00 NATURAL GROUND (3638.8')
24+00 NATURAL GROUND (3630.9')
30+00 NATURAL GROUND (3622.2')

PLAN VIEW - SCALE 1"=100'



No.	Rev. By:	Chk'd By:	REVISIONS

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EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 00 + 00 TO STA. 30 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
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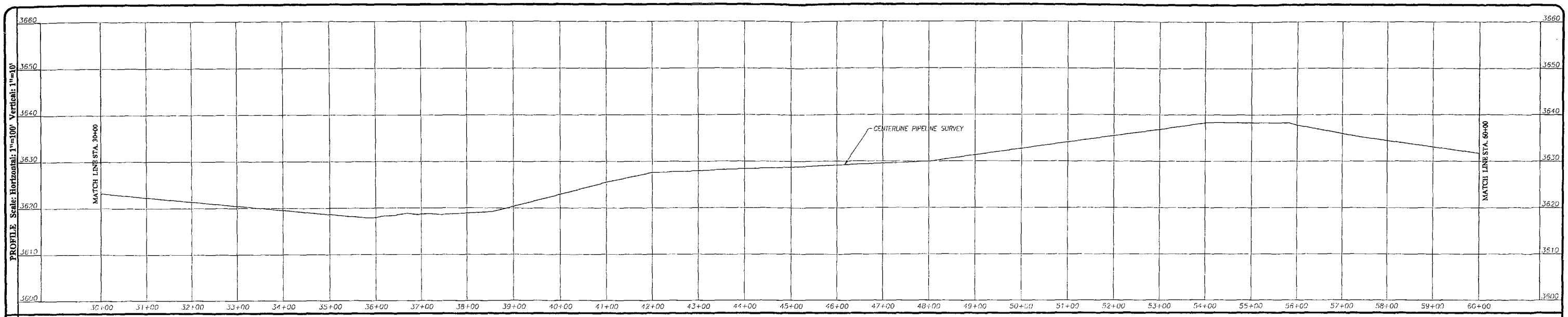
Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

30+05 NATURAL GROUND (3623.9')

35+81 BP AMERICAN BPL (3617.9')
35+97 LEASE ROAD (3617.9')
36+00 NATURAL GROUND (3617.9')
36+13 NAVAJO BPL (3618.2')
36+41 HOLLY SPL (3618.4')
36+58 NAVAJO BPL (3618.8')
36+91 NAVAJO SPL (3618.6')
37+17 NAVAJO BPL (3618.8')
37+43 (2) 3" HOLLY SUDF P/L (3618.6')

38+53 4-W ELEC. LN. (3619.2')

42+60 NATURAL GROUND (3627.6')

41+05 NEWBOURNE BPL (3625.7')
43+62.5 E-W SECTION LN.

48+00 NATURAL GROUND (3635.6')

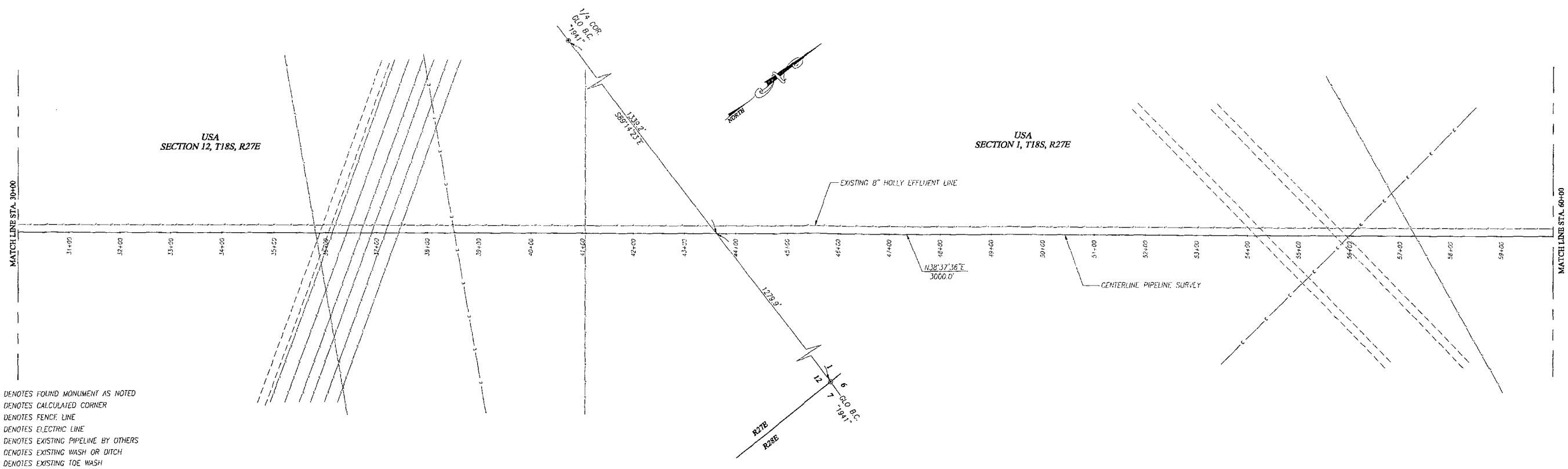
54+60 NATIGAL GROUND (3638.3')
54+28 LEASE ROAD (3638.4')

55+83 LEASE ROAD (3638.2')
56+00 4-W ELEC. LN. (3637.8')

57+30 DCP BPL (3635.4')

60+00 NATURAL GROUND (3631.7')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——e—— – DENOTES ELECTRIC LINE
- ——— – DENOTES EXISTING PIPELINE BY OTHERS
- – · – · – – DENOTES EXISTING WASH OR DITCH
- – – – – – – DENOTES EXISTING TOE WASH
- = = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. & ENDING IN SECTION 31, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 30 + 00 TO STA. 60 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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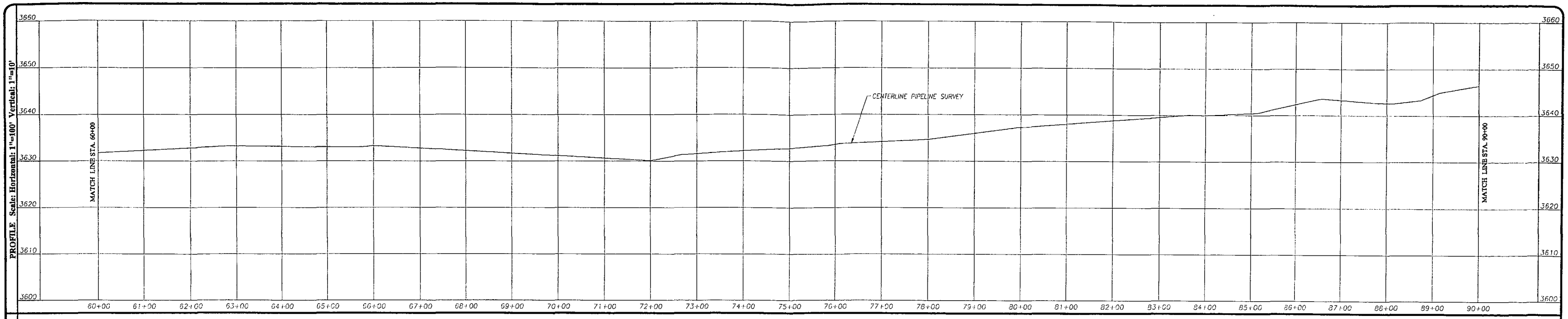
Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

60+00 NATURAL GROUND (3631.7')

52+75 4" POLY SURF P/L (3633.2')

64+12.5 N-S SECTION LINE

65+39 BP. (3632.9')

65+61 CENTURION BPL (3633.1')
66+00 MATCH LINE (3633.1')
66+00 CENTURION BPL (3633.1')
66+24 CENTURION BPL (3633.2')

72+66 NATURAL GROUND (3630.1')

72+66 E-W ELEC. LN. (3631.4')

79+85 BP. AMERICAN BPL (3633.3')
79+10 LEASE ROAD (3633.7')

78+00 NATURAL GROUND (3634.6')

79+92 (4) SURF. P/L'S
(3) 3" POLY SURF. P/L'S (3637.2')
80+20 BP. AMERICA BPL (3637.4')
80+24 4" STL SURF. P/L (3637.4')

82+66 LEASE ROAD (3640.1')

84+60 NATURAL GROUND (3640.9')

85+13 FRONTIER BPL (3640.5')

86+51 2" STL SURF. P/L (3642.5')
86+59 CENTURION BPL (3642.9')

86+78 3" POLY SURF. P/L (3642.8')

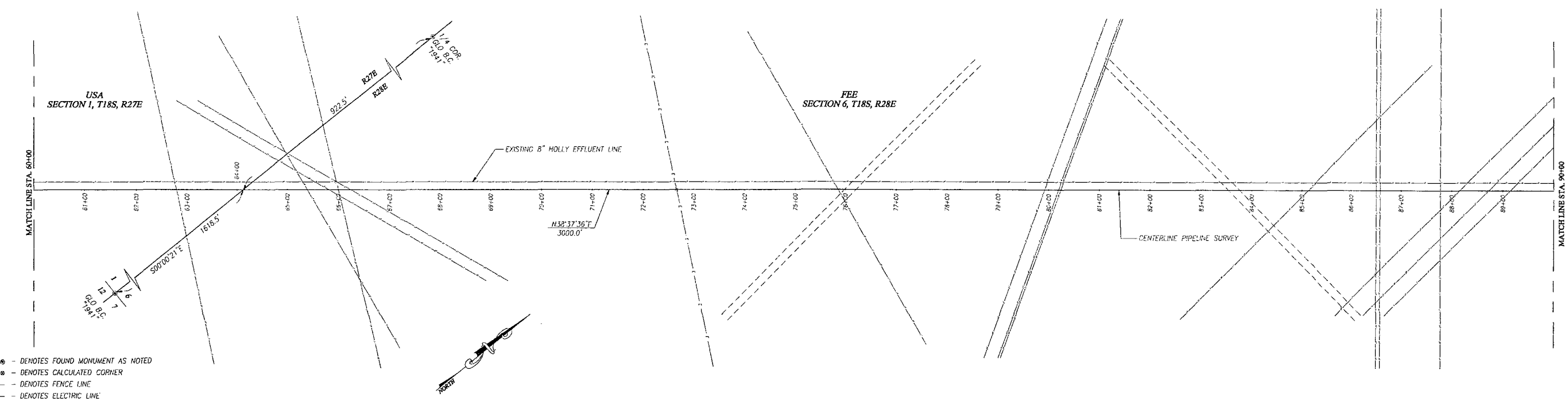
88+15 CHEVRON SPL (3642.6')

88+72 TRANSWESTERN BPL (3643.3')

89+15 FRONTIER BPL (3645.0')

90+00 NATURAL GROUND (3646.3')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
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- –·—·—·—·– – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOC WASH
- = = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

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& ENDING IN SECTION 31, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 60 + 00 TO STA. 90 + 00

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412 N. DAL PASO
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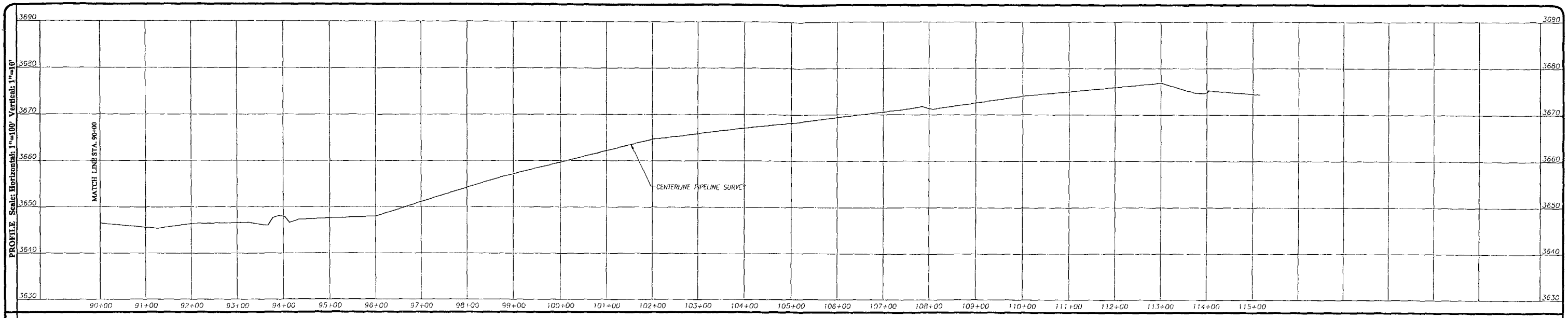
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

90+00 NATURAL GROUND (3646.5')

91+28.3 P.I. ORTIZ RT. (3645.4')

92+02 LEASE ROAD (3645.5')
93+25 NATURAL GROUND (3646.7')
93+61 NATURAL GROUND (3646.1')

93+78 EDGE ROAD (3647.7')
93+90 CO. RD. #204 (3648.1')
94+03 EDGE ROAD (3647.9')
94+32 3-W ELEC. LN. (3647.3')
94+75 NATURAL GROUND (3647.5')

96+60 NATURAL GROUND (3647.9')

98+53 CITY OF CARLSBAD WATER LN. (3655.9')
98+74 TRAIL ROAD INTERSECTION (3658.5')

105+86 FRANKLIN BPL (3661.8')

102+00 NATURAL GROUND (3664.7')

107+57 FRONTIER BPL (3671.2')
107+65 FRONTIER BPL (3671.8')
108+05 FRONTIER BPL (3671.2')

109+00 NATURAL GROUND (3670.5')

108+74.1 E-W SECTION LINE
108+75 4-W ELEC. LN. (3672.3')

110+06 3" POLY SURF. FPL (3674.1')

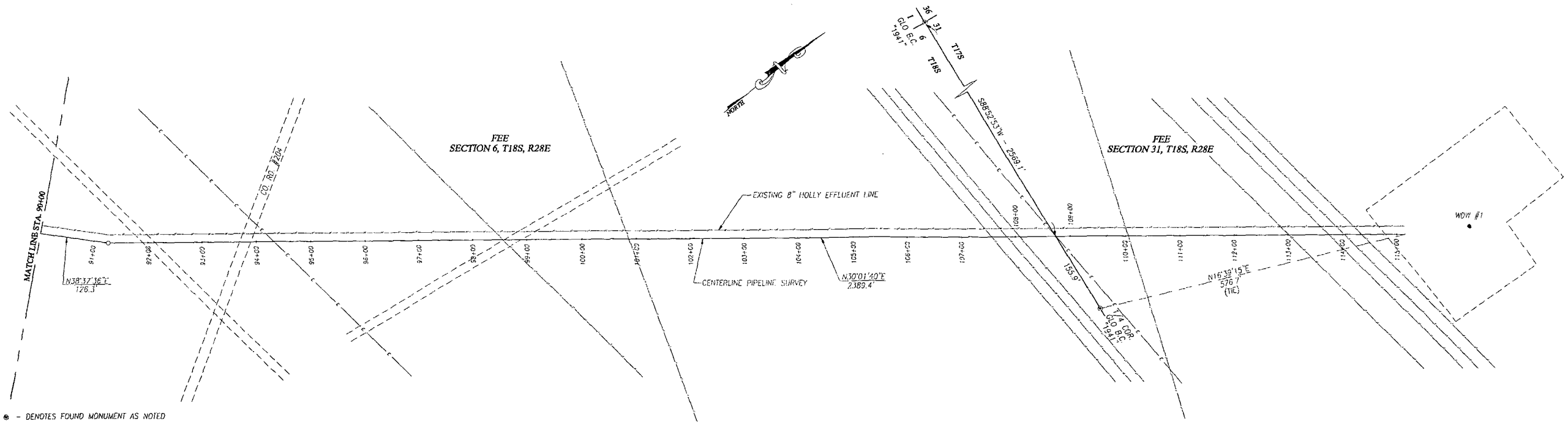
113+02 TRANSWESTERN BPL (3676.9')

113+75 TRANSWESTERN BPL (3674.7')
114+04 FRONTIER BPL (3675.2')
114+36 CHEVRON BPL (3675.0')

104+80 NATURAL GROUND (3674.7')

115+15.7 END SURVEY @
WDW #1 WELL PAD (3679.8')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——E—— – DENOTES ELECTRIC LINE
- ——P—— – DENOTES EXISTING PIPELINE BY OTHERS
- – – – – – – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- ========== – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
& ENDING IN SECTION 31, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 90 + 00 TO STA. 115 + 15.7

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	5 of 5
Survey Date:	10/13/10	CAD Dwg By:	LA
CAD Dwg Date:	12/22/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, February 08, 2011 7:59 AM
To: 'Moore, Darrell'
Cc: VonGonten, Glenn, EMNRD
Subject: RE: Abandonment Plan - Effluent Waste Water Line

Darrell:

The abandonment plan for the existing effluent waste water line is approved with the following condition:

- Please send the OCD a map(s) depicting the actual location of the existing line (i.e., 7.5 Minute USGS Quadrangle Scale) by COB this Friday so the OCD can place it along with your abandonment procedure on OCD Online in the event there are any future issues with accidental burial, run-ins with the line, etc.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Moore, Darrell [mailto:Darrell.Moore@hollycorp.com]
Sent: Tuesday, February 08, 2011 7:27 AM
To: Chavez, Carl J, EMNRD
Subject: Abandonment Plan - Effluent Waste Water Line

Carl,

Per your email of January 5, 2011. Navajo is submitting the following abandonment plan for the old effluent waste water line. The plan is as follows:

Abandonment plan will consist of removing all water from existing pipeline via running multiple pigs into frac tanks. Once all the water has been removed, then the pipeline will be cut off below grade and capped at both the start and end of the pipeline and at each lateral. Then the cathodic protection will be removed from the line.

If you have any questions concerning this submission, please contact me at 575-746-5281.

Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company, LLC
Phone Number 575-746-5281
Cell Number 575-703-5058
Fax Number 575-746-5451

Chavez, Carl J, EMNRD

From: Moore, Darrell [Darrell.Moore@hollycorp.com]
Sent: Monday, January 31, 2011 6:57 AM
To: Chavez, Carl J, EMNRD
Cc: Lackey, Johnny; VonGonten, Glenn, EMNRD; Dade, Randy, EMNRD; Monzeglio, Hope, NMENV; Powell, Richard, NMENV; Vasquez, Clemente
Subject: RE: Navajo Refining Company- Artesia Refinery (GW-028) "Minor Modification" to Discharge Permit for New Effluent Pipeline Routed East to 3 Refinery UIC Class I (non-hazardous) Disposal Wells

Gentlemen and Hope

Navajo will be doing the bore under the river for our new 8" Effluent Line on Tuesday, February 1, 2011 starting first thing that morning. This notification is per requirement below under "Construction" #1.

If there are any questions, please contact me by email or at 575-746-5281.

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, January 05, 2011 9:33 AM
To: Moore, Darrell
Cc: Lackey, Johnny; VonGonten, Glenn, EMNRD; Dade, Randy, EMNRD; Monzeglio, Hope, NMENV; Powell, Richard, NMENV
Subject: Navajo Refining Company- Artesia Refinery (GW-028) "Minor Modification" to Discharge Permit for New Effluent Pipeline Routed East to 3 Refinery UIC Class I (non-hazardous) Disposal Wells

Mr. Moore:

The Oil Conservation Division (OCD) has completed its review of the "8" Water Effluent Pipeline Project NRC" dated December 27, 2010. The fiberglass pipeline is a product of Fiber Glass Systems.

The OCD hereby **approves** the "Minor Modification" to the OCD Discharge Permit and installation of the effluent pipeline with the following conditions:

Report:

1) The report reviewed is unsigned and must be signed by the Project Engineer and General Manager and resubmitted to the OCD before the project may commence. This verifies that the engineers stand behind the proposed project. Also, the report should be the final report if the submitted report is a draft report.
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4) There appear to be near 90 elbows in the pipeline transect that would be preferred to have less bends. Cleanouts shall be placed in locations (elbows) inaccessible to the foam pig to ensure flow remains undisturbed throughout its life.

Construction:

1) Provide at least 24 hour notice to the OCD (Carl Chavez) and NMED- Surface Water Quality Bureau (Richard Powell) of project commencement and in advance of the pipeline emplacement below the Pecos River.
2) The setback distance at the Pecos River will likely need to be greater than 50 feet and should facilitate a smooth decline in elevation below the river to prevent any threat of discharges to the river throughout the life of the pipeline.

Please contact me if you have questions. Thank you.

Please be advised that NMOCD approval of this plan does not relieve Navajo Refining Company of responsibility should their operations fail to adequately prevent discharges of contamination to ground water, surface water, human health or the environment. In addition, NMOCD approval does not relieve Navajo Refining Company of responsibility for compliance with any other federal, state, or local laws and/or regulations.

File: OCD Online "GW-028- Minor Modifications" Thumbnail

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Moore, Darrell [mailto:Darrell.Moore@hollycorp.com]
Sent: Monday, December 27, 2010 2:52 PM
To: Chavez, Carl J, EMNRD
Subject: New Effluent Line

Carl

Tomorrow, you will receive a package that includes drawings and other pertinent information regarding our installation of the new effluent line to the injection wells. Obviously, with the recent leaks on the current line, this is a high priority issue for Navajo Refining Company. Your attention to this submission is greatly appreciated.

Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company, LLC
Phone Number 575-746-5281
Cell Number 575-703-5058
Fax Number 575-746-5451

Chavez, Carl J, EMNRD

From: Moore, Darrell [Darrell.Moore@hollycorp.com]
Sent: Friday, January 07, 2011 3:08 PM
To: Chavez, Carl J, EMNRD
Cc: VonGonten, Glenn, EMNRD; Dade, Randy, EMNRD; Monzeglio, Hope, NMENV; Powell, Richard, NMENV
Subject: RE: Navajo Refining Company- Artesia Refinery (GW-028) "Minor Modification" to Discharge Permit for New Effluent Pipeline Routed East to 3 Refinery UIC Class I (non-hazardous) Disposal Wells

Carl

Navajo agrees to the conditions listed below. Consider this email our notice that we will start construction in the prescribed time listed below.

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Sent: Wednesday, January 05, 2011 9:33 AM
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File: OCD Online "GW-028- Minor Modifications" Thumbnail

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Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Moore, Darrell [mailto:Darrell.Moore@hollycorp.com]
Sent: Monday, December 27, 2010 2:52 PM
To: Chavez, Carl J, EMNRD
Subject: New Effluent Line

Carl

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Darrell Moore
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Phone Number 575-746-5281
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Carl J. Chavez, CHMM
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Office: (505) 476-3490
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E-mail: CarlJ.Chavez@state.nm.us
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(Pollution Prevention Guidance is under "Publications")

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Sent: Monday, December 27, 2010 2:52 PM
To: Chavez, Carl J, EMNRD
Subject: New Effluent Line

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Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company, LLC
Phone Number 575-746-5281
Cell Number 575-703-5058
Fax Number 575-746-5451

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, January 06, 2011 11:00 AM
To: 'Moore, Darrell'
Cc: Lackey, Johnny; Vasquez, Clemente; Siwek, Janusz; VonGonten, Glenn, EMNRD
Subject: RE: Signed Project Summary

Darrell:

You need to respond to the OCD's e-mail with your acceptance of the conditions and/or any remaining issues that you may have.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
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From: Moore, Darrell [mailto:Darrell.Moore@hollycorp.com]
Sent: Wednesday, January 05, 2011 2:39 PM
To: Chavez, Carl J, EMNRD
Cc: Lackey, Johnny; Vasquez, Clemente; Siwek, Janusz
Subject: Signed Project Summary

Carl

Attached, please find a scanned copy of the Project Summary signed by the Project Engineer, Clem Vasquez and the General Manager, George Sanchez. I will send the original by Fed Ex.

We would like to start the project as soon as possible. I trust this will suffice to commence the project.

Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company, LLC
Phone Number 575-746-5281
Cell Number 575-703-5058
Fax Number 575-746-5451

HOLLY ENERGY PARTNERS

8" WATER EFFLUENT PIPELINE PROJECT NRC

Project Summary for Oil Conservation Division, Environmental Bureau

Prepared by:
Holly Energy Partners,
Technical Services Dept

HOLLY ENERGY PARTNERS
Artesia, NM

Revision 00, December 27, 2010

Clem Vasquez, EIT
Project Engineer

Prepared By

George L. Sanchez
General Manager, Tech Services

Approved By

HOLLY ENERGY PARTNERS

PROJECT SUMMARY

PROJECT: 8" Water Effluent Pipeline

PROJECT LOCATION: Artesia, NM

The 8" Water Effluent Pipeline project will consist of designing and constructing approximately 15miles of new 8" Fiberglass pipeline. This new pipeline will parallel the existing 8" carbon steel water effluent pipeline (starting inside the Navajo Refinery and heading East to three injection wells). The current 8" carbon steel water effluent line is in service and operating but is highly corroded(due to internal corrosion), thus the need to design/construct a new pipeline parallel to it.

The new pipeline design needs to take into consideration the tie ins to the well injection locations and accommodate minimal down time on the existing carbon steel pipeline when activating the new line and deactivating the old (carbon steel) pipeline. The new fiberglass pipeline will be below grade and all below grade to above grade transitions will be accomplished with internal and external coated carbon steel. These carbon steel sections will also be protected with anode banks, for external corrosion protection. The scope of work will stop at the inlet to the filter isolation valves at each injection well sites. The isolation/block valves (qty 6) will be below grade in a concrete valve box (with the exception to the west river valve setting). The entire construction will consist of approximately 10weeks (see attached schedule).

The 8" Fiberglass is a NOV, STAR, Anhydride line pipe product with a design pressure rating 1500psig at 150deg F(see attached spec sheet). The fluid in this design is effluent water which comes from the Navajo Refinery (see attached water samples). The pipeline max flow rate for design is 750gpm (~26,000bbl/day) at 130deg F(max) and pressures shall stay within the pressure rating of ANSI 600#.

We will use the fiberglass line pipe max temperature rating (150 deg F) and the valves/flanges pressure rating (1480psig) as the constraints for design parameters.

The pipeline will be designed so that it can be pigged (with a foam pig) from the start of the pipeline (inside the refinery), the to last injection well (Mewbourne – Inj. well #1). The two other laterals are short sections with isolation valves that won't be pigged (Chukka –Inj. Well #2; Gains – Inj. Well #3).

This pipeline will have several locations where steel casing will be encasing the fiberglass pipeline to protect it from third party damage as additional precaution. These locations include but are not limited to county road crossings, state highway crossings, river crossing, and major pipeline corridor crossings.

Thus overall the new pipeline design will be much more resilient to internal corrosion and the addition of more isolation valves will make it easier to work on sections of the line or injection well if a problem does prevail.

1. Specifications and Standards for Design
    a. US DOT CFR 49 Part 195 -Hazardous Liquids
    b. American Society of Mechanical Engineers B31.4 (ASME)
    c. American Petroleum Institute 6D(API)
    d. American Petroleum Institute 1104(API)
    e. American Petroleum Institute Recommended Practice 1102(API RP)
    f. American Society for Testing and Materials (ASTM)
    g. Occupational Safety and Health Administration (OSHA)
    h. American Concrete Institute (ACI)
    i. National Association of Corrosion Engineers (NACE)
    j. National Electric Code (NEC)

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, January 05, 2011 9:33 AM
To: 'Moore, Darrell'
Cc: Lackey, Johnny; VonGonten, Glenn, EMNRD; Dade, Randy, EMNRD; Monzeglio, Hope, NMENV; Powell, Richard, NMENV
Subject: Navajo Refining Company- Artesia Refinery (GW-028) "Minor Modification" to Discharge Permit for New Effluent Pipeline Routed East to 3 Refinery UIC Class I (non-hazardous) Disposal Wells

Mr. Moore:

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NAVAJO REFINING COMPANY, LLC

FAX
(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

FAX
(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

December 27, 2010

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Dear Carl,

Enclosed, please find a three ring binder that includes all information pertaining to installing the new effluent line at our Artesia facility. As you are aware, the current effluent line has suffered several leaks this past year. It is our intention to replace this old line with a new fiberglas line.

This submission has pipeline specifications, road crossing procedures, pipeline index maps, schedule, project summary and water sample results. The water sample results were to insure compatability with the pipe material.

Due to the stability of the current effluent line, we are planning on starting this project on January 3, 2011. We hope to be finished by the first week of April, 2011.

Your prompt attention to this submission is greatly appreciated.

Sincerely,
NAVAJO REFINING COMPANY, LLC

Darrell Moore

Darrell Moore
Environmental Manager for Water and Waste

Encl:

HOLLY ENERGY PARTNERS

8" WATER EFFLUENT PIPELINE PROJECT NRC

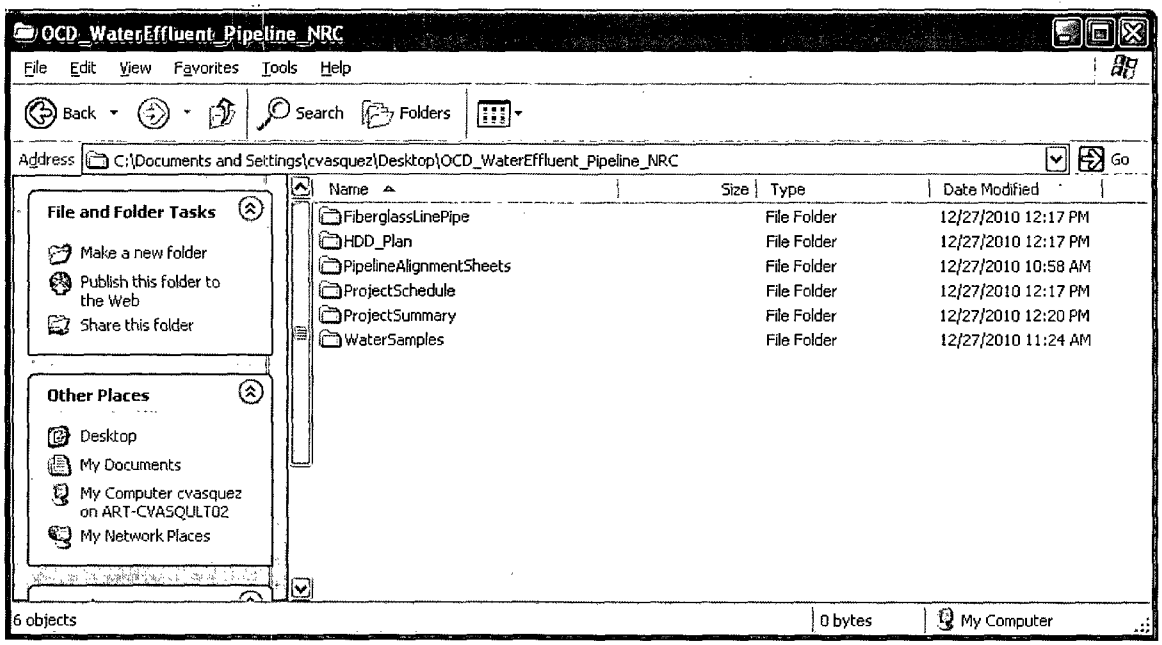
Project Summary for Oil Conservation Division, Environmental Bureau

Prepared by:
Holly Energy Partners,
Technical Services Dept

HOLLY ENERGY PARTNERS
Artesia, NM

Revision 00, December 27, 2010

Clem Vasquez, EIT Project Engineer	George L. Sanchez General Manager, Tech Services
Prepared By	Approved By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WaterSamples File Folder 12/27/2010 11:24 AM
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STAR™ Anhydride Line Pipe *(High Pressure - API 15HR DESIGN - Product Data)*

Product Description

- Pressure - Up to 2750 psi (19,0 MPa)
- Resin System - Anhydride Cured Epoxy
- Reinforcement - Premium Fiberglass
- Joining Systems - API 8rd Threaded
- Joint Length - 30 Feet (9,1 mts) Nominal Random Lengths of 20 to 32 Feet (6,1 to 9,8 mts) depending on size
- Temperature - Up to 150° F (65.6° C) Maximum
- Sizes - 1½ through 8 inches
- Fittings - A variety of filament wound API 5B threaded fittings are available. API 15HR design systems require higher rated fittings, refer to the chart on page 26, STAR™ High Pressure Threaded Fittings. Temperature interpolation is not recommended for fittings.

High Pressure Design ≥ 500 psi

- API 15HR Designed and monogrammed products are indicated by a check mark (✔) in tables
- Design Life - 20 years at full rating
- Design Temperature - 150° F (65.6° C)
- Wall Thickness - Minimum
- Hoop Stress - Average Lower Confidence Limit (LCL), ASTM D2992-B
- 100% Factory Hydrotest - At 1.5 x the series rated pressure at 150° F (65.6° C)

Flow Factors

- Hazen Williams C=150
- Absolute Roughness = 0.00021 in. (0.00533 mm)

Nominal Moduli

- Modulus of Elasticity
  Hoop - 3.5 x 10^6 psi (24,1 GPa)
  Axial - 1.5 x 10^6 psi (10,3 GPa)
- Poisson's Ratio (Minor) = 0.38

Physical Properties

- Density = 121 lbs/cu ft (1938 kgs/cu m)
- Specific Gravity = 1.94

Thermal Properties

- Coefficient of Thermal Conductivity
  0.23 BTU/(ft•hr•°F) (0.4 W/(m•C°))
- Coefficient of Thermal Expansion
  13.7 x 10^{-6} in/in/°F (24,7 x 10^{-6} mm/mm/°C)

Benefits

- Corrosion Control
- Reduced Installation Costs
- Improved Flow Efficiency
- Reduced Paraffin & Scale Build-Up
- Reduced Maintenance Cost

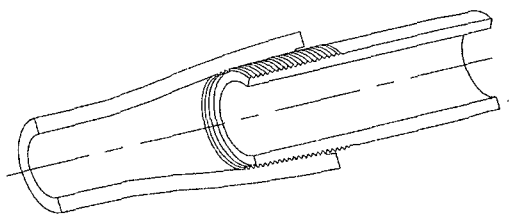
Applications

- Production Lines or Injection Lines
- Transfer Lines or Disposal Lines
- Oil, Gas, Saltwater, CO_2 and H_2S

Performance Ratings (ASTM D 2992-B)	150° F (65.6° C)
11.4 Year Life, LTHS	24,503 (169,0)
20 Year Life, LTHS	23,768 (163,9)
20 Year Life, LCL (Lower Confidence Limit)	21,400 (147,6)

Joining System

Advanced Composite Thread (ACT)



API Threads

- Advanced Composite Thread (ACT) - Molded threads using a graphite, ceramic and epoxy composite for high performance applications. (Patent No's 4,999,389 & 5,179,140)
- Precision Ground Thread (PGT) - Typical ground threads produced with numerical controlled grinding equipment.
- All 1½" EUE 10rd and 2-3/8" - 4½" EUE 8rd API threads conform to API 5B Table 14, 14th Edition (L4 is minimum) and all 5½" - 9 5/8" OD 8rd casing threads conform to API 5B Table 7, 14th Edition (L4 is minimum).

www.fiberglasssystems.com

P.O. Box 37389, 2425 SW 36th Street
San Antonio, Texas 78237 USA
Phone: 1 (210) 434-5043
Fax: 1 (210) 434-7543

NOV Fiber Glass Systems

SIZE			PIPE DIMENSIONS (NOMINAL)											
Nom. Size	API Thread Type	Product Code	Inside Diameter In.	(mm)	Outside Diameter In.	(mm)	Wall Thickness In.	(mm)	Pipe Weight Lbs/ft	(kg/m)	API Thread Conn. Dia In.	(mm)	Maximum Support Span Ft.	(m)
Series 500 - ACT (All Sizes) or PGT (All Sizes except 5")														
3	3 1/2	R0530	3.00	(76,2)	3.12	(79,3)	0.06	(1,5)	0.92	(1,4)	4.15	(105,4)	10	(3,1)
4	4 1/2	R0539	3.91	(99,3)	4.06	(103,4)	0.08	(2,0)	1.21	(1,8)	5.15	(130,7)	11	(3,4)
5	5 1/2	R0547	4.74	(120,4)	4.93	(125,3)	0.10	(2,5)	1.89	(2,8)	5.99	(152,2)	12	(3,7)
6	6 5/8	R0558	5.85	(148,6)	6.08	(154,6)	0.12	(2,9)	2.67	(4,0)	7.09	(180,1)	13	(4,0)
8	8 5/8	R0575	7.50	(190,5)	7.79	(198,3)	0.15	(3,7)	4.22	(6,3)	9.18	(233,1)	15	(4,6)
Series 750 - ACT (All Sizes) or PGT (All Sizes except 5")														
2 1/2	2 7/8	R0724	2.43	(61,7)	2.58	(65,5)	0.08	(1,9)	0.72	(1,1)	3.49	(88,7)	10	(3,1)
3	3 1/2	R0730	3.00	(76,2)	3.19	(80,9)	0.09	(2,4)	1.16	(1,7)	4.21	(106,9)	11	(3,4)
4	4 1/2	R0739	3.91	(99,3)	4.15	(105,4)	0.12	(3,1)	1.80	(2,7)	5.26	(133,7)	12	(3,7)
5	5 1/2	R0747	4.74	(120,4)	5.03	(127,8)	0.15	(3,7)	2.25	(3,3)	6.11	(155,2)	14	(4,0)
6	6 5/8	R0758	5.85	(148,6)	6.21	(157,8)	0.18	(4,6)	3.55	(5,3)	7.24	(183,9)	15	(4,6)
8	8 5/8	R0775	7.50	(190,5)	7.96	(202,3)	0.23	(5,9)	5.39	(8,0)	9.35	(237,5)	17	(5,2)
Series 1000 - ACT (All Sizes) or PGT (All Sizes except 5")														
2	2 3/8	R1020	2.00	(50,8)	2.17	(55,0)	0.08	(2,1)	0.60	(0,9)	3.00	(76,3)	9	(2,8)
2 1/2	2 7/8	R1024	2.43	(61,7)	2.63	(66,9)	0.10	(2,6)	0.91	(1,4)	3.55	(90,3)	10	(3,1)
3	3 1/2	R1030	3.00	(76,2)	3.25	(82,5)	0.12	(3,2)	1.40	(2,1)	4.27	(108,5)	12	(3,7)
4	4 1/2	R1039	3.91	(99,3)	4.24	(107,6)	0.16	(4,1)	2.12	(3,2)	5.32	(135,2)	13	(4,0)
5	5 1/2	R1047	4.74	(120,4)	5.13	(130,4)	0.20	(5,0)	3.00	(4,5)	6.23	(158,2)	14	(4,3)
6	6 5/8	R1058	5.85	(148,6)	6.34	(160,9)	0.24	(6,2)	4.50	(6,7)	7.42	(188,4)	16	(4,9)
8	8 5/8	R1075	7.50	(190,5)	8.12	(206,3)	0.31	(7,9)	7.21	(10,7)	9.64	(244,9)	18	(5,5)
Series 1250 - ACT (All Sizes) or PGT (2", 2 1/2", 3", 4" and 6" Sizes)														
1 1/2	1.90	R1215	1.50	(38,1)	1.66	(42,1)	0.08	(2,0)	0.46	(0,7)	2.51	(63,8)	8	(2,5)
2	2 3/8	R1220	2.00	(50,8)	2.21	(56,1)	0.10	(2,7)	0.76	(1,1)	3.06	(77,8)	10	(3,1)
2 1/2	2 7/8	R1224	2.43	(61,7)	2.68	(68,2)	0.13	(3,2)	1.12	(1,7)	3.62	(91,8)	11	(3,4)
3	3 1/2	R1230	3.00	(76,2)	3.31	(84,2)	0.16	(4,0)	1.65	(2,5)	4.33	(110,1)	12	(3,7)
4	4 1/2	R1239	3.91	(99,3)	4.32	(109,7)	0.21	(5,2)	2.51	(3,7)	5.46	(138,6)	13	(4,0)
5	5 1/2	R1247	4.74	(120,4)	5.24	(133,0)	0.25	(6,3)	3.79	(5,6)	6.40	(162,7)	15	(4,6)
6	6 5/8	R1258	5.85	(148,6)	6.46	(164,2)	0.31	(7,8)	5.48	(8,2)	7.59	(192,9)	17	(5,2)
8	8 5/8	R1275	7.50	(190,5)	8.29	(210,5)	0.39	(10,0)	9.04	(13,5)	9.88	(250,9)	19	(5,9)
Series 1500 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes)														
1 1/2	1.90	R1515	1.50	(38,1)	1.69	(42,9)	0.10	(2,4)	0.59	(0,9)	2.57	(65,4)	9	(2,8)
2	2 3/8	R1520	2.00	(50,8)	2.25	(57,3)	0.13	(3,2)	0.83	(1,2)	3.11	(78,9)	10	(3,1)
2 1/2	2 7/8	R1524	2.43	(61,7)	2.74	(69,6)	0.15	(3,9)	1.19	(1,8)	3.65	(92,8)	11	(3,4)
3	3 1/2	R1530	3.00	(76,2)	3.38	(85,9)	0.19	(4,8)	1.93	(2,9)	4.46	(113,2)	12	(3,7)
4	4 1/2	R1539	3.91	(99,3)	4.41	(111,9)	0.25	(6,3)	3.14	(4,7)	5.62	(142,8)	14	(4,3)
5	5 1/2	R1547	4.74	(120,4)	5.34	(135,7)	0.30	(7,7)	4.60	(6,8)	6.58	(167,2)	16	(4,9)
6	6 5/8	R1558	5.85	(148,6)	6.59	(167,5)	0.37	(9,5)	6.51	(9,7)	7.83	(199,0)	17	(5,2)
8	8 5/8	R1575	7.50	(190,5)	8.45	(214,7)	0.48	(12,1)	11.00	(16,4)	10.18	(258,5)	20	(6,2)
Series 1750 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes)														
2	2 3/8	R1720	2.00	(50,8)	2.30	(58,4)	0.15	(3,8)	0.98	(1,5)	3.15	(80,1)	10	(3,1)
2 1/2	2 7/8	R1724	2.43	(61,7)	2.79	(71,0)	0.18	(4,6)	1.39	(2,1)	3.76	(95,6)	11	(3,4)
3	3 1/2	R1730	3.00	(76,2)	3.45	(87,6)	0.22	(5,7)	2.22	(3,3)	4.58	(116,3)	13	(4,0)
4	4 1/2	R1739	3.91	(99,3)	4.50	(114,2)	0.29	(7,4)	3.54	(5,3)	5.81	(147,5)	14	(4,3)
5	5 1/2	R1747	4.74	(120,4)	5.45	(138,4)	0.36	(9,0)	5.23	(7,8)	6.75	(171,4)	16	(4,9)
6	6 5/8	R1755	5.50	(139,7)	6.32	(160,6)	0.41	(10,5)	7.09	(10,6)	8.04	(204,3)	17	(5,2)

(Metric Conversions are in Parentheses)

SIZE			STAR RATED PRESSURE													
Nom. Size	API Thread Type	✔	Static (1) 150° F (65,6 C) psi	(MPa)	Ultimate (2) Pressure ASTM D-1599 psi	(MPa)	Minimum Bending Radius Ft	(m)	Maximum Deflection In/ft	(cm/m)	Collapse Rating psi	(MPa)	Short Term Tensile Rating Lbs	(kgs)	Threaded Adapter Product Code	
Series 500 - ACT (All Sizes) or PGT (All Sizes except 5")																
3	3 1/2	✔	500	(3,4)	1800	(12,4)	159	(48,5)	41	(104,1)	62	(0,4)	2400	(1089)	35NT	
4	4 1/2	✔	500	(3,4)	1400	(9,7)	204	(62,2)	32	(81,3)	28	(0,2)	3000	(1361)	45NT	
5	5 1/2	✔	500	(3,4)	1500	(10,3)	248	(75,6)	25	(63,5)	35	(0,2)	4800	(2177)	55NR	
6	6 5/8	✔	500	(3,4)	1300	(9,0)	304	(92,7)	20	(50,8)	23	(0,2)	6300	(2858)	65NV	
8	8 5/8	✔	500	(3,4)	1400	(9,7)	392	(119,5)	16	(40,6)	30	(0,2)	11500	(5216)	85NU	
Series 750 - ACT (All Sizes) or PGT (All Sizes except 5")																
2 1/2	2 7/8	✔	750	(5,2)	2200	(15,2)	130	(39,6)	50	(127,0)	113	(0,8)	1900	(862)	27NT	
3	3 1/2	✔	750	(5,2)	2400	(16,5)	162	(49,4)	40	(101,6)	145	(1,0)	3200	(1452)	35NT	
4	4 1/2	✔	750	(5,2)	2300	(15,9)	210	(64,0)	31	(78,7)	124	(0,9)	5200	(2359)	45NT	
5	5 1/2	✔	750	(5,2)	2200	(15,2)	254	(77,4)	24	(61,0)	117	(0,8)	7400	(3357)	55NR	
6	6 5/8	✔	750	(5,2)	2100	(14,5)	312	(95,1)	20	(50,8)	101	(0,7)	10700	(4854)	65NV	
8	8 5/8	✔	750	(5,2)	1900	(13,1)	398	(121,3)	15	(38,1)	76	(0,5)	15900	(7212)	85NU	
Series 1000 - ACT (All Sizes) or PGT (All Sizes except 5")																
2	2 3/8	✔	1000	(6,9)	2700	(18,6)	109	(33,2)	60	(152,4)	212	(1,5)	1600	(726)	23NS	
2 1/2	2 7/8	✔	1000	(6,9)	2900	(20,0)	133	(40,5)	49	(124,5)	265	(1,8)	2600	(1179)	27NT	
3	3 1/2	✔	1000	(6,9)	3000	(20,7)	165	(50,3)	39	(99,1)	281	(1,9)	4100	(1860)	35NT	
4	4 1/2	✔	1000	(6,9)	2800	(19,3)	213	(64,9)	30	(76,2)	215	(1,5)	6300	(2858)	45NT	
5	5 1/2	✔	1000	(6,9)	2600	(17,9)	257	(78,3)	24	(61,0)	186	(1,3)	8800	(3992)	55NR	
6	6 5/8	✔	1000	(6,9)	2700	(18,6)	318	(96,9)	19	(48,3)	212	(1,5)	14000	(6350)	65NS	
8	8 5/8	✔	1000	(6,9)	2600	(17,9)	406	(123,7)	15	(38,1)	183	(1,3)	21800	(9888)	85NS	
Series 1250 - ACT (All Sizes) or PGT (2", 2 1/2", 3", 4" and 6" Sizes)																
1 1/2	1.90	✔	1250	(8,6)	3600	(24,8)	84	(25,6)	64	(162,6)	487	(3,4)	1200	(544)	19NR	
2	2 3/8	✔	1250	(8,6)	3600	(24,8)	112	(34,1)	58	(147,3)	491	(3,4)	2200	(998)	23NS	
2 1/2	2 7/8	✔	1250	(8,6)	3700	(25,5)	136	(41,5)	48	(121,9)	510	(3,5)	3300	(1497)	27NT	
3	3 1/2	✔	1250	(8,6)	3600	(24,8)	168	(51,2)	39	(99,1)	482	(3,3)	5000	(2268)	35NT	
4	4 1/2	✔	1250	(8,6)	3300	(22,8)	216	(65,8)	30	(76,2)	361	(2,5)	7600	(3447)	45NS	
5	5 1/2	✔	1250	(8,6)	3400	(23,4)	263	(80,2)	23	(58,4)	390	(2,7)	11500	(5216)	55NQ	
6	6 5/8	✔	1250	(8,6)	3300	(22,8)	324	(98,8)	19	(48,3)	384	(2,6)	17400	(7893)	65NQ	
8	8 5/8	✔	1250	(8,6)	3300	(22,8)	415	(126,5)	15	(38,1)	373	(2,6)	28300	(12837)	N/A	
Series 1500 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes)																
1 1/2	1.90	✔	1500	(10,3)	4800	(33,1)	87	(26,5)	62	(157,5)	1114	(7,7)	1700	(771)	19NR	
2	2 3/8	✔	1500	(10,3)	3900	(26,9)	113	(34,4)	58	(147,3)	622	(4,3)	2400	(1089)	23NS	
2 1/2	2 7/8	✔	1500	(10,3)	3900	(26,9)	137	(41,8)	47	(119,4)	623	(4,3)	3600	(1633)	27NT	
3	3 1/2	✔	1500	(10,3)	4200	(29,0)	171	(52,1)	38	(96,5)	759	(5,2)	5900	(2676)	35NS	
4	4 1/2	✔	1500	(10,3)	4100	(28,3)	222	(67,7)	29	(73,7)	707	(4,9)	9800	(4445)	45NR	
5	5 1/2	✔	1500	(10,3)	4100	(28,3)	269	(82,0)	23	(58,4)	701	(4,8)	14300	(6486)	55NP	
6	6 5/8	✔	1500	(10,3)	3900	(26,9)	330	(100,6)	19	(48,3)	630	(4,3)	20900	(9480)	N/A	
8	8 5/8	✔	1500	(10,3)	4000	(27,6)	424	(129,2)	14	(35,6)	660	(4,6)	35000	(15876)	N/A	
Series 1750 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes)																
2	2 3/8	✔	1750	(12,1)	4700	(32,4)	116	(35,4)	56	(142,2)	1067	(7,4)	3000	(1361)	23NS	
2 1/2	2 7/8	✔	1750	(12,1)	4500	(31,0)	140	(42,7)	46	(116,8)	970	(6,7)	4200	(1905)	27NS	
3	3 1/2	✔	1750	(12,1)	4800	(33,1)	174	(53,0)	37	(94,0)	1124	(7,7)	6900	(3130)	35NS	
4	4 1/2	✔	1750	(12,1)	4500	(31,0)	225	(68,6)	29	(73,7)	969	(6,7)	11000	(4990)	45NR	
5	5 1/2	✔	1750	(12,1)	4600	(31,7)	273	(83,2)	22	(55,9)	1007	(6,9)	16400	(7439)	N/A	
6	6 5/8	✔	1750	(12,1)	4600	(31,7)	317	(96,6)	19	(48,3)	991	(6,8)	21900	(9934)	N/A	

(Metric Conversions are in Parentheses)

NA - Not Available (Repair Joint Required)

SIZE			PIPE DIMENSIONS (NOMINAL)									
Nom Size	API Thread Type	Product Code	Inside Diameter In	(mm)	Outside Diameter In	(mm)	Wall Thickness In	(mm)	Pipe Weight Lbs/ft	(kg/m)	API Thread Conn. Dia In	(mm)	Maximum Support Span Ft	(m)
Series 2000 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes)														
1 1/2	1.90	R2015	1.50	(38,1)	1.76	(44,7)	0.13	(3,3)	0.73	(1,1)	2.64	(67,1)	9	(2,8)
2	2 3/8	R2020	2.00	(50,8)	2.35	(59,6)	0.17	(4,4)	1.14	(1,7)	3.26	(82,7)	11	(3,4)
2 1/2	2 7/8	R2024	2.43	(61,7)	2.85	(72,4)	0.21	(5,3)	1.64	(2,4)	3.89	(98,8)	12	(3,7)
3	3 1/2	R2030	3.00	(76,2)	3.52	(89,4)	0.26	(6,6)	2.52	(3,7)	4.71	(119,5)	13	(4,0)
4	4 1/2	R2039	3.91	(99,3)	4.59	(116,5)	0.34	(8,6)	4.24	(6,3)	5.93	(150,7)	15	(4,6)
6	6 5/8	R2055	5.50	(139,7)	6.45	(163,9)	0.48	(12,1)	8.18	(12,2)	8.29	(210,7)	18	(5,5)
Series 2250 - ACT (All Sizes) or PGT (2 1/2" and 3" Sizes)														
2 1/2	2 7/8	R2224	2.43	(61,7)	2.91	(73,9)	0.24	(6,1)	1.89	(2,8)	4.02	(102,1)	12	(3,7)
3	3 1/2	R2230	3.00	(76,2)	3.59	(91,2)	0.30	(7,5)	2.82	(4,2)	4.83	(122,8)	13	(4,0)
4	4 1/2	R2239	3.91	(99,3)	4.68	(118,9)	0.39	(9,8)	4.65	(6,9)	6.12	(155,4)	15	(4,6)
Series 2500 - ACT (All Sizes) or PGT (2", 2 1/2" and 3" Sizes)														
1 1/2	1.90	R2515	1.50	(38,1)	1.83	(46,5)	0.17	(4,2)	0.90	(1,3)	2.83	(71,9)	10	(3,1)
2	2 3/8	R2520	2.00	(50,8)	2.44	(62,0)	0.22	(5,6)	1.42	(2,1)	3.48	(88,5)	11	(3,4)
2 1/2	2 7/8	R2524	2.43	(61,7)	2.97	(75,4)	0.27	(6,8)	2.08	(3,1)	4.12	(104,6)	12	(3,7)
3	3 1/2	R2530	3.00	(76,2)	3.66	(93,1)	0.33	(8,4)	3.13	(4,7)	4.96	(126,1)	14	(4,3)
4	4 1/2	R2537	3.75	(95,3)	4.58	(116,3)	0.42	(10,5)	5.09	(7,6)	6.33	(160,8)	15	(4,6)
Series 2750 - ACT (All Sizes)														
3	3 1/2	R2727	2.72	(69,1)	3.39	(86,1)	0.34	(8,5)	3.14	(4,7)	5.14	(130,5)	13	(4,0)

(Metric Conversions are in Parenthesis)

Joining System Information (API 8rd Thread)

Pipe Size - Inches Joining System		1 1/2	2	2 1/2	3	4	5	6	8	8
Thread Size [3]		1.90" EUE 10rd	2 3/8" EUE 8rd	2 7/8" EUE 8rd	3 1/2" EUE 8rd	4 1/2" EUE 8rd	5 1/2" OD 8rd	6 5/8" OD 8rd	8 5/8" OD 8rd	9 5/8" OD 8rd
• Pin Upset O.D.	In	2.15	2.60	3.10	3.75	4.75	5.55	6.65	8.65	9.65
	(mm)	(54,6)	(66,0)	(78,7)	(95,3)	(120,7)	(141,0)	(168,9)	(219,7)	(245,1)
• Thread Length	In	2.36	2.94	3.25	3.50	3.88	4.75	4.25	4.85	5.13
	(mm)	(59,9)	(74,7)	(82,6)	(88,9)	(98,6)	(120,7)	(108,0)	(123,2)	(130,3)
• Make Up Length Loss	In	2.06	2.56	2.86	3.13	3.50	4.38	3.88	4.50	4.75
	(mm)	(52,4)	(65,1)	(73,0)	(79,4)	(88,9)	(111,1)	(98,4)	(114,3)	(120,7)

(Metric Conversions are in Parentheses)

Corresponding Numbered Notes:

1. **SERIES PRESSURE (API 15HR)** - Based on minimum wall thickness dimensions and API 15HR Edition 3, for a 20 year life expectancy. Since some of the long term test data is incomplete for some of these products, not all are available with an API Monogram. API Monogrammable products are designated by check marks. NOV Fiber Glass Systems Standard Design products are not API monogrammed.
2. **ULTIMATE PRESSURE** - The typical mode of failure for pressure is weep.
3. **API CONNECTIONS** - All products are produced integral joint unless indicated (TC) Threaded and Coupled. All 1½" EUE 10rd and 2 3/8" - 4½" EUE 8rd API threads conform to API 5B Table 14, 14th Edition (L4 is minimum) and all 5½" - 9 5/8" OD 8rd casing threads conform to API 5B Table 7, 14th Edition (L4 is minimum).
4. **CYCLIC PRESSURE** - Consult a NOV Fiber Glass Systems technical services personnel in applications where pressure fluctuations of more than 20 percent of the steady pressure rating are anticipated.

SIZE			STAR RATED PRESSURE*														
Nom. Size	API Thread Type	✔	Static 150° F (65.6° C) psi	(MPa)	Ultimate Pressure ASTM D 1599 psi	(MPa)	Minimum Bending Radius Ft	(m)	Maximum Deflection in/ft	(cm/jt)	Collapse Rating psi	(MPa)	Short Term Tensile Rating Lbs	(kgs)	Threaded Adapter Product Code		
Series 2000 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes)																	
1 1/2	1.90		2000	(13,8)	5900	(40,7)	90	(27,4)	60	(152,4)	2141	(14,8)	2200	(998)	19NQ		
2	2 3/8		2000	(13,8)	5400	(37,2)	118	(36,0)	55	(139,7)	1619	(11,2)	3500	(1588)	23NQ		
2 1/2	2 7/8		2000	(13,8)	5300	(36,5)	143	(43,6)	45	(114,3)	1518	(10,5)	5100	(2313)	27NQ		
3	3 1/2		2000	(13,8)	5400	(37,2)	177	(53,9)	37	(94,0)	1588	(10,9)	7800	(3538)	35NR		
4	4 1/2		2000	(13,8)	5400	(37,2)	231	(70,4)	28	(71,1)	1637	(11,3)	13500	(6124)	45NP		
6	6 5/8		2000	(13,8)	5200	(35,9)	323	(98,5)	19	(48,3)	1465	(10,1)	25500	(11567)	N/A		
Series 2250 - ACT (All Sizes) or PGT (2 1/2" and 3" Sizes)																	
2 1/2	2 7/8		2250	(15,5)	6000	(41,4)	146	(44,5)	45	(114,3)	2232	(15,4)	5900	(2676)	27NQ		
3	3 1/2		2250	(15,5)	5900	(40,7)	180	(54,9)	36	(91,4)	2163	(14,9)	8900	(4037)	35NQ		
4	4 1/2		2250	(15,5)	5900	(40,7)	234	(71,3)	28	(71,1)	2080	(14,3)	14800	(6713)	N/A		
Series 2500 - ACT (All Sizes) or PGT (2", 2 1/2" and 3" Sizes)																	
1 1/2	1.90		2500	(17,2)	7100	(49,0)	93	(28,3)	58	(147,3)	3645	(25,1)	2700	(1225)	19NS		
2	2 3/8		2500	(17,2)	6500	(44,8)	122	(37,2)	54	(137,2)	2853	(19,7)	4400	(1996)	23NP		
2 1/2	2 7/8		2500	(17,2)	6500	(44,8)	149	(45,4)	44	(111,8)	2870	(19,8)	6500	(2948)	N/A		
3	3 1/2		2500	(17,2)	6500	(44,8)	183	(55,8)	35	(88,9)	2859	(19,7)	9900	(4491)	35NP		
4	4 1/2		2500	(17,2)	6600	(45,5)	230	(70,1)	23	(58,4)	3015	(20,8)	15800	(7167)	N/A		
Series 2750 - ACT (All Sizes)																	
3	3 1/2		2750	(19,0)	7400	(51,0)	171	(52,1)	36	(91,4)	4128	(28,5)	9500	(4309)	N/A		

(Metric Conversions are in Parentheses) *N/A - Not Available (Repair Joint Required)*

Pipe Capacity

Size		Inside Diameter		Capacity	
Pipe	Thread	in	(mm)	Bbls/1 000 ft	(m^3/km)
1 1/2	1.90	1.50	(38,1)	2.20	(1,1)
2	2 3/8	2.00	(50,8)	3.90	(2,0)
2 1/2	2 7/8	2.43	(61,7)	5.70	(3,0)
3	3 1/2	3.00	(76,2)	8.70	(4,5)
4	4 1/2	3.75	(95,3)	13.70	(7,1)
4	4 1/2	3.91	(99,3)	14.80	(7,7)
5	5 1/2	4.74	(120,4)	21.80	(11,4)
6	6 5/8	5.50	(139,7)	29.40	(15,3)
6	6 5/8	5.85	(148,6)	33.20	(17,3)
8	8 5/8	7.50	(190,5)	54.60	(28,5)

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NOV Fiber Glass Systems

O1201 Issued August 2009 - Supersedes July 2007

HDD DRILLING MUD CONTINGENCY PLAN

DESCRIPTION OF HDD PROCESS

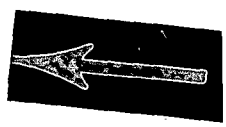
The HDD crossing technique is a trenchless installation process that uses equipment and methods derived from the oil well drilling industry. The technique is used to install pipelines beneath obstacles or sensitive areas and consists of a multi-stage process. A small diameter pilot hole is first drilled along a crossing profile, and is followed by an enlargement or "reaming" of the pilot hole to accommodate a pull back of the pipeline. The pilot hole is drilled using rotation cutting and/or jetting with a jetting assembly attached to drill pipe. The cutting action of the drill head is remotely operated to control its orientation and direction.

Increasing the pilot hole's diameter with multiple reaming passes is an incremental process that will depend on the pipeline diameter and subsurface geology. Once the pilot hole has been enlarged, the pre-assembled, hydrostatically tested section of pipeline is pulled into the completed hole.

PURPOSE OF PLAN

All stages of HDD operations involve the use and circulation of bentonite drilling fluid or mud. Drilling fluid is used to lubricate the drill bit, help stabilize the hole, and remove cuttings or spoil from the drill hole. Among other purposes, the drilling fluid is used to transport soil and rock cuttings to the surface as the drilling fluid is continuously recirculated to the entry point. The fluid also stabilizes the hole, reduces drilling friction, cools and cleans the drill cutters, transmits hydraulic power to the drill bit, and performs the hydraulic excavation of the cuttings.

The main component of the drilling fluid used in HDDs for pipeline installation is water. A viscosifier (typically a naturally-occurring bentonite clay) is added to the water to improve its lubricating properties and to enhance the fluid's performance. Specific soils and drilling conditions may require the addition of other constituents to ensure that the properties of the drilling fluid meet the needs of the particular situation. Because the drilling fluid consists mainly of a bentonite clay-water mixture, it is not considered to be hazardous or toxic. However, when inadvertently released into a waterbody, it can suffocate fish and aquatic organisms that live on the bottoms of streams and rivers.



The most likely occurrence of inadvertent drilling fluid release to develop during a drilling operation is from a "frac-out." A frac-out occurs when drilling fluids and mud are released through fractures in the soil and migrate toward the surface. Frac-outs usually occur during initial stages of the pilot hole drilling operations when the down-hole pressures are too high for the surrounding formation. Escape of drilling fluids and mud from a frac-out is most common near the drill entry and exit locations, but can occur at any location along the drill path.

This plan identifies operational procedures and responsibilities for the prevention, containment, and clean-up of frac-outs associated with HDD operations.

LAYOUT AND DESIGN FOR HDD CROSSINGS

The HDD entry and exit locations will be sited to provide a minimum of a 50-foot setback from all sensitive resources and a maximum design depth clearance to provide the greatest buffer between the sensitive resource and the drilling activity/installed pipe.

DOCUMENTATION AND MONITORING OF HDD OPERATIONS

Records of the HDD activities will be maintained by the drilling contractor (Contractor) and provided to the Operator. A daily progress report will document the employees engaged in the operation, as well as operational information such as hole size, tool in use, footage each day and to date, and rate of penetration. The records will also document the amount of bentonite used each day and to date, whether circulation had been lost, volume of fluid lost, and volumes of fluids and solids disposed of each day. Updates to the fluid system and/or drilling schedule will

also be recorded. A daily drilling log and daily reaming log will also be maintained for HDD activities. These logs will record parameters such as joint number and length, time, total hours, location of the drilling tool, torque, pump pressure, start/stop times and other notes.
The Construction Inspector(s) and/or the Environmental Inspector(s) will continuously monitor operations during HDD activities.

Monitoring activities during drilling operations will include:

- Visual inspection along the drill path, fluid return pit(s) and waterbody or drainage surface for evidence of a release;
- Observation and documentation of drilling fluid pressures using HDD instrumentation;
- Observation and documentation of drilling fluid recirculation volumes; and
- Complete documentation of all drilling fluid products used.

The Contractor will have readily available containment equipment to contain inadvertent releases of drilling mud to water bodies including earth-moving equipment, portable pumps, containment booms, hand tools, hay bales, silt fence and sandbags. The Environmental Inspector(s) will ensure that adequate quantities of spill containment equipment and supplies are at the drilling location prior to allowing the Contractor to begin drilling. Further, the Environmental Inspector(s) will ensure that each individual involved in drilling operations is familiar with the locations of all spill containment equipment and the specific procedures for handling potential drilling fluid releases.

LOSS OF CIRCULATION

Typically, lost circulation has the highest probability of occurring while the pilot hole is being drilled due to the smaller bore-hole annulus and the large volume of solids being displaced from the bore and carried out in the drilling fluid. In the course of drilling the pilot hole, circulation will often be temporarily lost as the pilot bit is advanced through more permeable or less competent sections of the ground formation when fluid pressures are at a maximum. As the pilot bit advances beyond these sections of the bore-hole, fluid pressure will fall and circulation within the bore-hole will naturally be re-established. Much of the fluid lost to the formation under the greater pressures will return back to the bore-hole as the pressures fall, in which case the drilling fluid is not likely to migrate to the ground surface or the river.

Drill cuttings generated in the drilling process often naturally bridge and seal fractures or voids as the drilling progresses, thus providing another means of re-establishing circulation. This often happens during the reaming process when higher volumes of larger cuttings are generated. Therefore it is usually beneficial to proceed with the pilot hole even if circulation has not been re-established, since it will likely be re-established at some point during the reaming process.

If a significant reduction of drilling fluid circulation is detected without total loss of circulation, the Contractor will reduce drilling fluid volumes and subsequent pressures and will increase the yield point of drilling fluid. Then, depending upon the progress of the drilling, the drill pipe may be tripped out until return flow is restored.

However, if a complete loss of circulation of drilling mud occurs during operation of a HDD, the Operator, will require the Contractor to cease pumping immediately, contain any drilling fluid which has surfaced, notify the Chief Inspector and Chief Environmental Inspector, and evaluate the data and circumstances leading to the loss of circulation; and determine what method should be utilized to seal the fracture. Most fractures can be sealed, if detected early on, by pumping special materials to prevent loss of circulation down hole.

PROCEDURES FOR RELEASE OF DRILLING FLUID

Should an inadvertent release of drilling fluid occur in accessible areas, containment and subsequent clean-up will begin immediately upon detection. Remember that measures used to contain releases of drilling fluid will vary according to site-specific conditions (e.g. volume of fluid, topography, and environmental setting).

The most commonly used system for containing surface releases of bentonite involves a perimeter earthen berm, hay bales, or silt fence. In those instances where this type of containment cannot be used, containment procedures will be directed by the Chief Inspector assisted by the Chief Environmental Inspector to minimize environmental impact. After containment, clean-up and restoration will generally be accomplished utilizing one of the following: hand labor, hand tools and buckets; portable pumps and hand tools; rubber tired equipment and hand tools; and vacuum trucks and hand tools.

Under certain field conditions isolation of drilling fluid is virtually impossible. In the unlikely event that a release occurs within an area that cannot be isolated or contained, such as along the bed of a waterbody or into the water, drilling operations will be stopped immediately. Following evaluation by appropriate personnel, a decision will be made on how best to continue the crossing construction to minimize impacts.

In all cases, the procedures listed below will be followed.

- Ensure that all reasonable measures within the limitations of the technology have been taken to reestablish drilling fluid circulation;
- Continue drilling with the minimum amount of drilling fluid required to penetrate the formation and successfully install the pipeline.
- In the event of an inadvertent release of drilling fluid within a waterway, the Operator will immediately contact the following agencies by telephone and/or facsimile and describe the location and nature of the release, the corrective actions being taken, and whether the release poses a threat to public health and safety.

US Fish & Wildlife Service
Wally Murphy, Ecological Services Field Supervisor
(505) 761-4781

•

In Southern New Mexico and West Texas
US Army Corps of Engineers
El Paso Regulatory Office
James Mace
915-568-1359
(915) 568-1359
FAX: 915-568-1348

New Mexico Department of Game and Fish
Matt Wunder, Chief, Conservation Services Division
(505) 476-8101

New Mexico Oil Conservation Division
Carl Chavez ~~Wayne Price~~, Environmental Bureau Chief
(505) 476-3490

•

Mike Pawlik New Mexico Environment Department, Surface Water Bureau
~~Neal Schaeffer~~
(505) 476-3017

ABANDONMENT OF HDD

If a directional drill must be abandoned, the drill hole will be filled with drilling fluid and grout sealed for a distance of not less than thirty feet at each end.

HDD FAILURE CRITERIA

While it is widely believed that installing river crossings by HDD construction is less environmentally damaging than open cut construction, there are many cases where HDD may not be the method best suited for a particular crossing location. Soil conditions, scheduling, and economics often play a major role in determining whether an HDD is feasible. Furtherk, scheduling concerns may necessitate a "fall-back" plan that allows for the timely transition from HDD construction to an open cut or other type of construction if a drilled crossing is determined to be not economically or environmentally feasible.

PILOT HOLE

If it becomes evident that directional control of the downhole steering assembly has been lost during the pilot hole phase of construction, the HDD operations will be abandoned. This can occur as a result of gravel and cobble formations causing poor hole stability and the inability to move the heavier cobble-type material away from the bit.

In other words, if it is impossible to drill a hole within the design criteria set forth by the Operator, then another type of crossing method will be used. If the drill string becomes stuck during the drilling of the pilot hole and two attempts to free the pipe and drilling assembly from the formation fail, then only one more attempt to drill a new pilot hole will be made. This will also be the case for "twisted-off" drill pipe, since stuck or twisted–off pipe is usually the result of poor hole condition (cuttings or gravel surrounding the stem) and/or excessive sharp turns from a lack of directional control. Thus, if the drill stem is stuck and is either intentionally severed for recovery or inadvertently twisted apart, the crew will abandon the hole, move the drill rig, and begin a new hole.

Finally, if during the second attempt at a pilot hole the drill string or the drilling assembly becomes difficult to turn without the use of a large amount of torque from the drill rig, the contractor will make efforts to reduce the torque. If removal of the drill stem and cutting head (referred to as tripping out) to clean the hole or the use of torque reducing additives in the drill fluid fails to remedy the high torque on the drill pipe, the HDD will be abandoned to avoid creating another stuck or twisted-off pipe string. This will avoid the loss of another expensive tool and the waste of time and money on the drill spread.

PRE-REAMING

Fluid circulation is critical to the success of any HDD crossing. During the reaming process (pre-ream or swab pass) large amounts of drill fluid, possibly 400 GPM or more, will be pumped down hole. The drill contractor may employ techniques such as "tripping out" to clean the hole, using a cleaning tool, or using fluid additives to aid in stabilizing the hole. If drill fluid circulation is lost during any of the ream passes, the drill contractor will make two attempts at both trying to regain circulation and containing any fluid reaching the surface.

In the event that full fluid circulation is not achieved and drilling fluid is reaching the ground surface or a waterbody that cannot be accessed for containment, HDD construction will be abandoned for another option so that further environmental impacts do not occur. If the drill string or reamer/hole opener becomes stuck during the final ream pass, and numerous attempts to free the pipe and drilling assembly from the formation fail, then only one more attempt to drill a new pilot hole will be made.

This will also bethe case for "twisted-off" drill pipe. Thus, if the reamer/hole opener or drill stem is stuck and is either intentionally severed for recovery or inadvertently twisted apart, the crew will abandon the hole, move the drill rig and begin a new hole. If during the ream pass on the second pilot hole the drill string or the drilling assembly becomes difficult to turn without the use of a large amount of torque from the drill rig, the contractor will make efforts to reduce the torque. If "tripping out" to clean the hole or the use of torque reducing additives in the drill fluid fails to remedy the high torque on the drill pipe, the HDD will be abandoned to avoid having another stuck or twisted-off pipe string. This will avoid the loss of an expensive downhole tool and the waste of costly time of the drill spread.

Finally, if during the reaming process the equipment is experiencing very slow penetration rates, a determination will be made whether or not to continue. The slow rate of reaming will have a large impact on scheduling and cost. After reviewing drill logs and geotechnical data the Contractor and the Operator will decide whether a change in the penetration rates is likely. If it appears the current rate of reaming will continue throughout the crossing and that the rate is not economically feasible, the HDD operation will be abandoned.

PIPE PULLBACK

In this final stage of HDD construction the ultimate failure is if the pipe section being pulled in becomes stuck and is not able to be pulled further into the hole for completion. This occurs most often as a result of a poorly drilled pilot hole or poor hole stability due to a loose and granular formation or a loss of circulation. Depending on where in the section the stuck pipe has occurred, the Contractor may use winches to move the pipe to completion or pull the pipe section out of the hole. If the section is pulled out of the hole the Contractor will run a reamer through the hole again in order to clean any fallen debris. The Contractor may also opt to run a larger sized reamer if a dogleg is thought to be the problem. Once the hole is said to be suitable for pullback, the pipe section will be prepared for another attempt at installation. If a second attempt at pullback is not successful, the HDD crossing will be abandoned. If the Contractor is not able to pull the stuck section out of the hole, the pipe will be abandoned in-place in the ground. The section will be cut off below ground level and capped. At this point HDD construction will be deemed not feasible and an alternative crossing method will be adopted.

DOCUMENTATION OF EVENTS LEADING TO AN HDD FAILURE

In the event that an attempted HDD is determined to be unsuccessful, the following agencies will be provided with the documentation that describes the events leading up to the HDD failure:

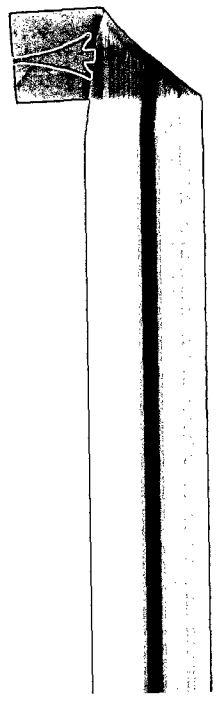
US Fish & Wildlife Service
Wally Murphy, Ecological Services Field Supervisor
(505) 761-4781

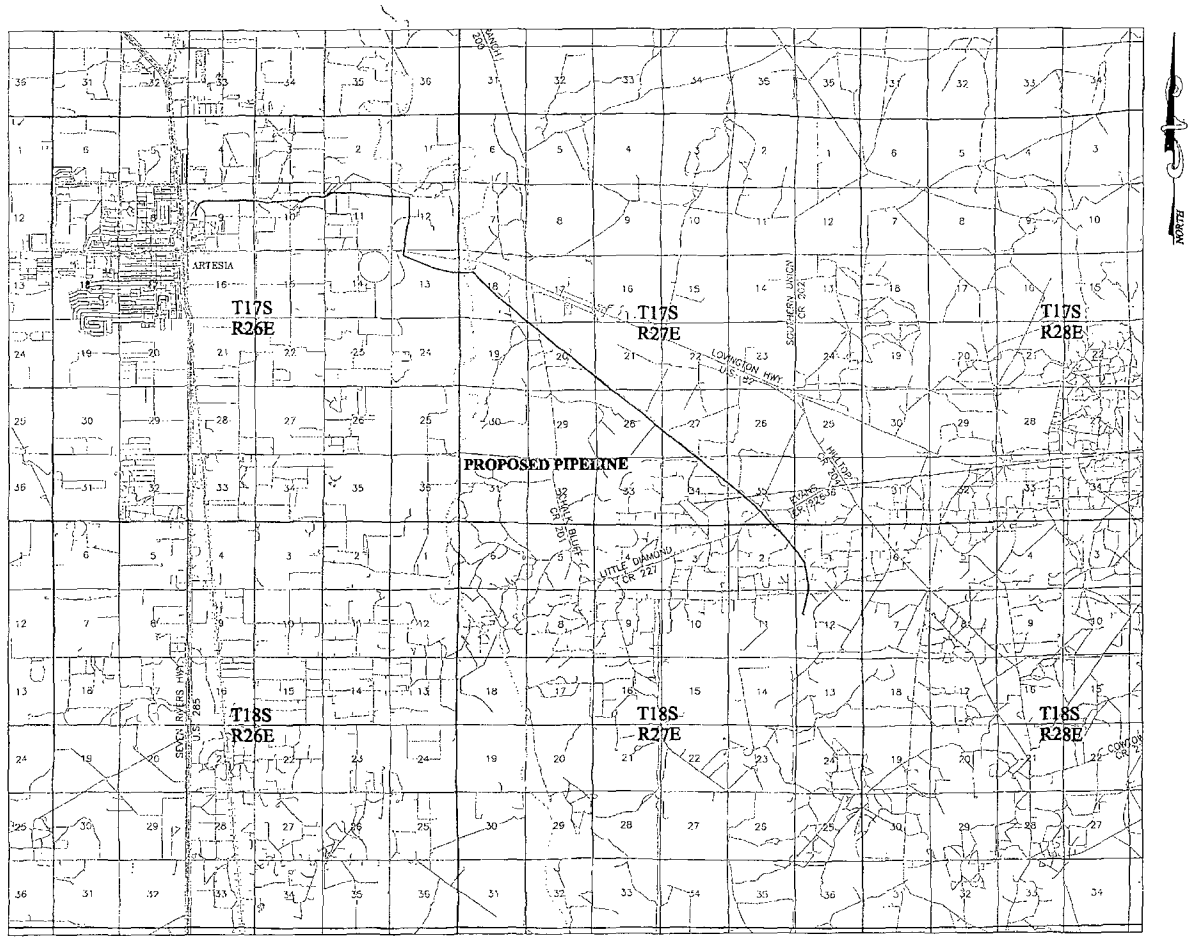
In Southern New Mexico and West Texas
US Army Corps of Engineers
El Paso Regulatory Office
James Mace
915-568-1359
(915) 568-1359
FAX: 915-568-1348

New Mexico Department of Game and Fish
Matt Wunder, Chief, Conservation Services Division
(505) 476-8101

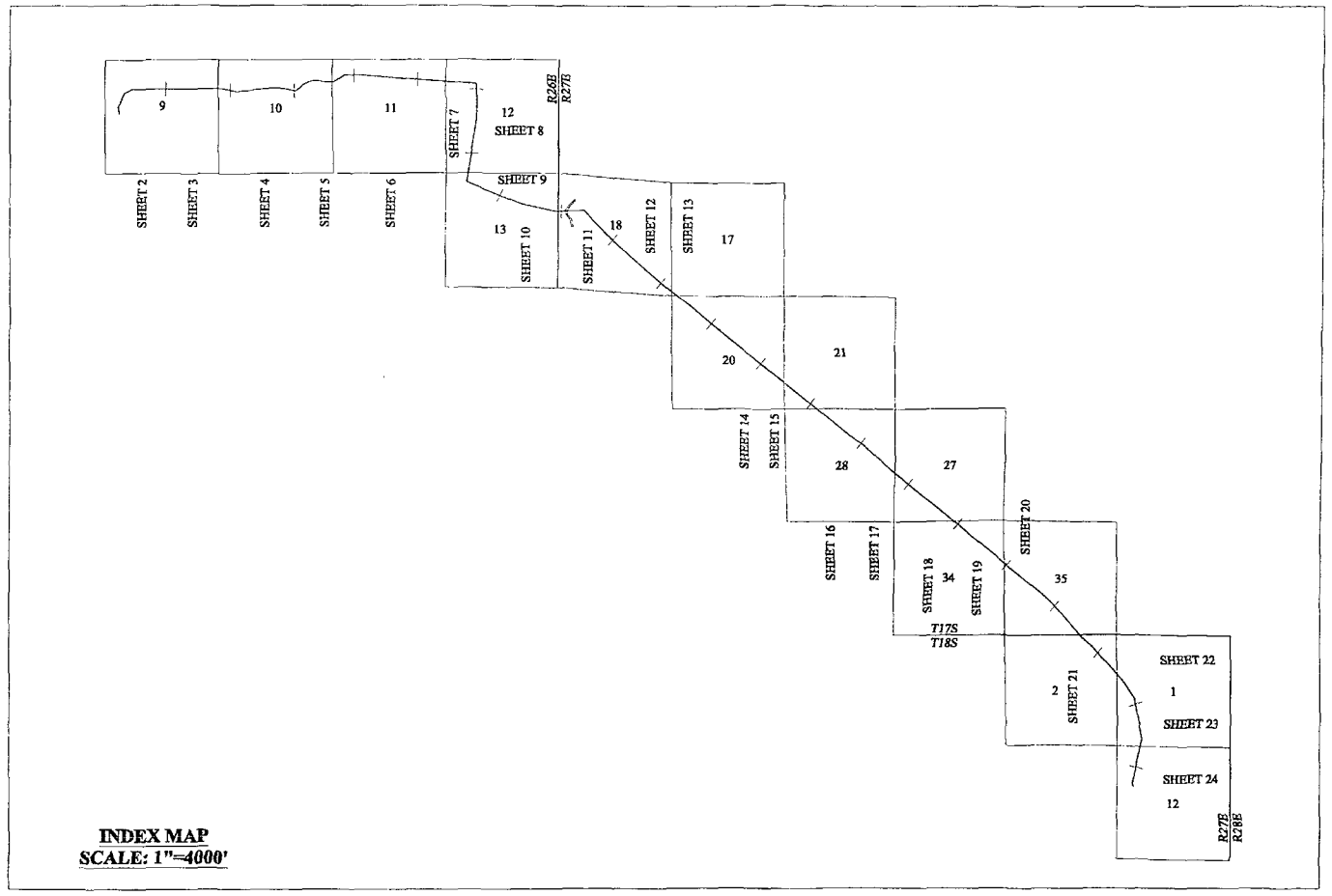
New Mexico Oil Conservation Division
Wayne Price, Environmental Bureau Chief
(505) 476-3490

New Mexico Environment Department, Surface Water Bureau
Neal Schaeffer
(505) 476-3017





VICINITY MAP
NOT TO SCALE



INDEX MAP
SCALE: 1"=4000'

LEGEND AND GENERAL NOTES:

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——— – DENOTES FENCE LINE
- ——— – DENOTES ELECTRIC LINE
- ——— – DENOTES EXISTING PIPELINE BY OTHERS
- ——— – DENOTES EXISTING WASH OR DITCH
- ——— – DENOTES EXISTING ROAD

GENERAL NOTES:

1) BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

2) REFER TO INDIVIDUAL PLATS SUBMITTED BY JOHN WEST SURVEYING COMPANY.

3) UTILITY LOCATIONS SHOWN ARE FROM OBSERVED SURFACE EVIDENCE. ACTUAL LOCATIONS SHOULD BE VERIFIED.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

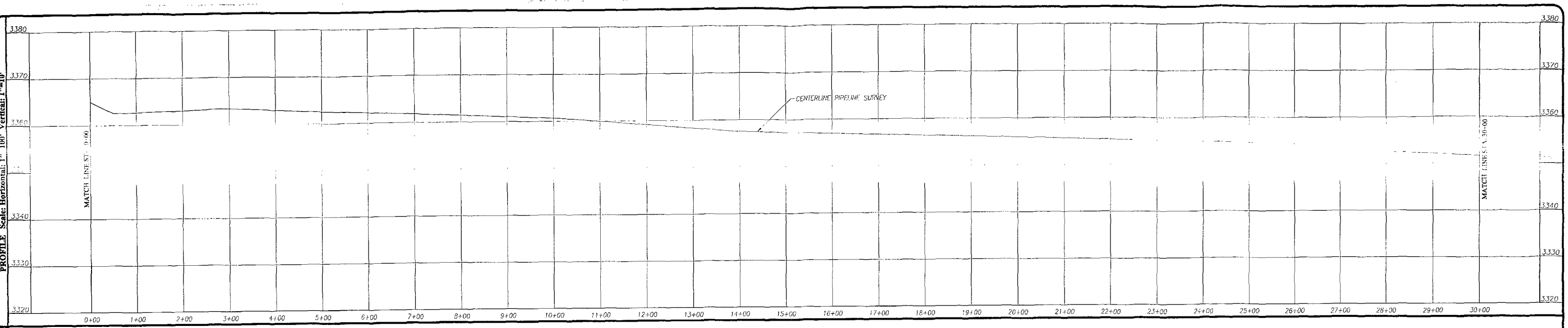
HOLLY ENERGY PARTNERS
PROPOSED PIPELINE INDEX MAP, LEGEND AND GENERAL NOTES

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	1 of 24 TITLE SHEET
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/20/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1" 100' Vertical: 1"=10'



STATIONING

0+00 BEGIN SURVEY 15' SOUTH OF EXIST. 8" EFFLUENT LINE (3365.0')

0+51 P.I. 13°42'42" LT. (3362.5')

1+31 DOUBLE POLE O.H. ELEC. LN. (3362.5')

2+91.7 P.I. 40°43'22" RT. (3363.3')

5+23 DOUBLE POLE O.H. ELEC. LN. (3362.8')

7+90 PAVED ROAD 12' WIDE (3352.4')

10+17.4 P.I. 36°04'45" RT. (3360.6')

14+00.7 P.I. 27°19'37" RT. (3357.5')

14+63 7' CHAIN LINK FENCE (3356.9')

15+89 DOUBLE POLE O.H. ELEC. LN. (3356.6')

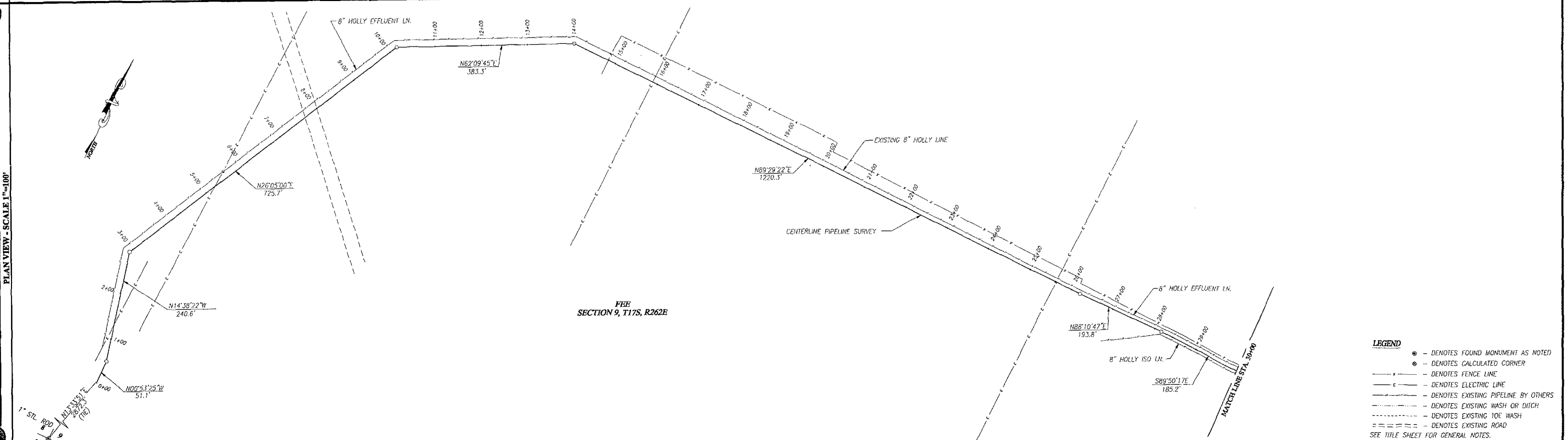
20+00 NATURAL GROUND (3355.9')

25+63 2-W O.H. ELEC. LN. (3354.3')

26+21.0 P.I. 01°18'35" LT. (3352.3')

28+14.8 P.I. 01°58'56" RT. (3352.6')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- x — x — – DENOTES FENCE LINE
- E — E — – DENOTES ELECTRIC LINE
- – DENOTES EXISTING PIPELINE BY OTHERS
- – DENOTES EXISTING WASH OR DITCH
- – DENOTES EXISTING TOE WASH
- – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

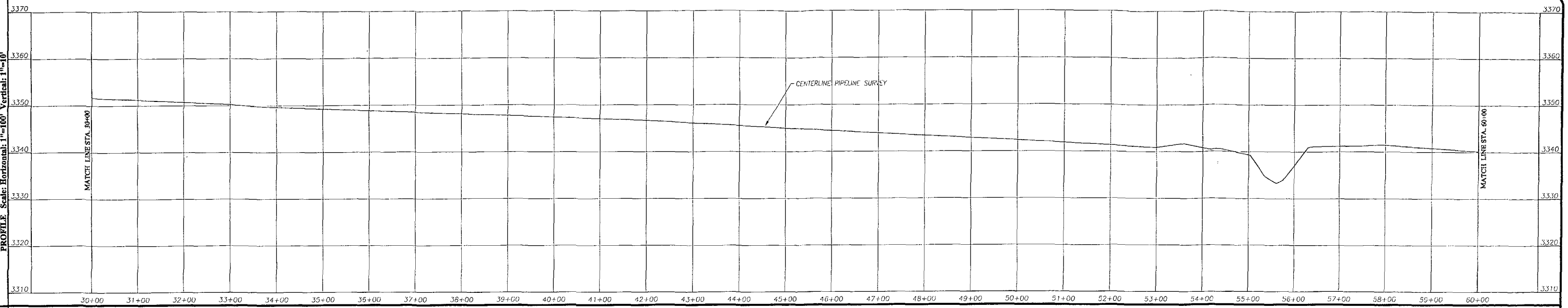
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 00 + 00 TO STA. 30 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	2 of 24
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

32+98 7' CHAIN LINK FENCE (3350.5')

33+50± P.I. 09°16'51" LT. (3352.8')

36+00 NATURAL GROUND (3348.8')

42+29 NATURAL GROUND (3346.7')

48+00 NATURAL GROUND (3343.4')

52+97 4-W BW FENCE LINE (3340.9')

53+60 NATURAL GROUND (3341.7')

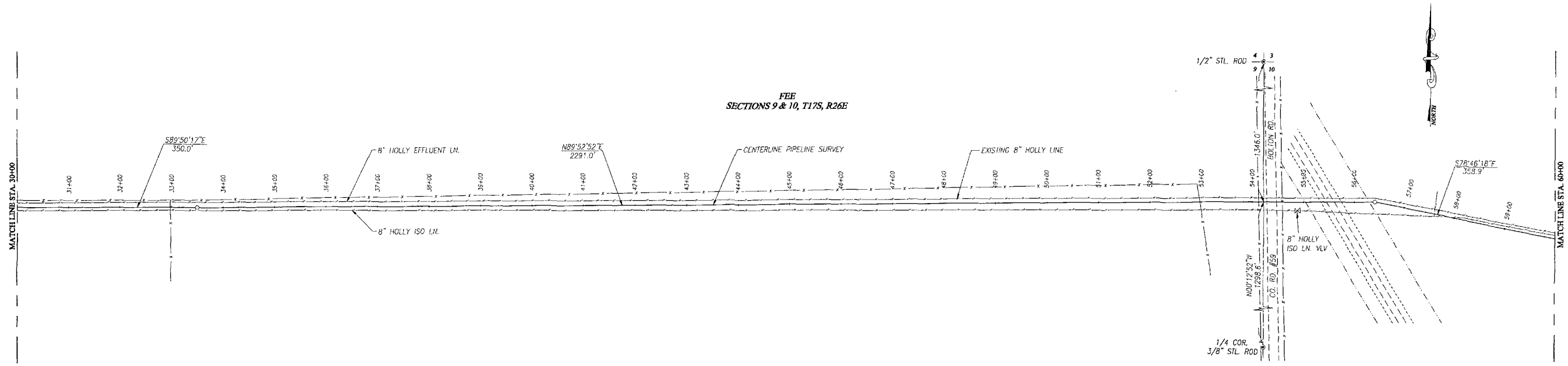
54+11 R.O.W. FENCE (3340.5')
54+22.2 SECTION LINE
54+29 C.L. CO. RD. #59 (3340.6')
(BOLTON RD)
54+47 R.O.W. FENCE (3340.4')
54+70 TOP EAGLE DRAW (3339.1')
55+34 TOE EAGLE DRAW (3334.3')
55+61 C.L. EAGLE DRAW (3333.3')
55+75 TOE EAGLE DRAW (3333.9')

56+30 TOP EAGLE DRAW (3341.0')
56+43.1 P.I. 11°20'50" RT (3341.1')

57+53 HOLLY BPL (SO (3341.7')
57+92 8" HOLLY BPL (SO) (3341.5')

60+00 NATURAL GROUND (3340.0')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊗ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——c—— – DENOTES ELECTRIC LINE
- ——/——/—— – DENOTES EXISTING PIPELINE BY OTHERS
- ——·——·—— – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 30 + 00 TO STA. 60 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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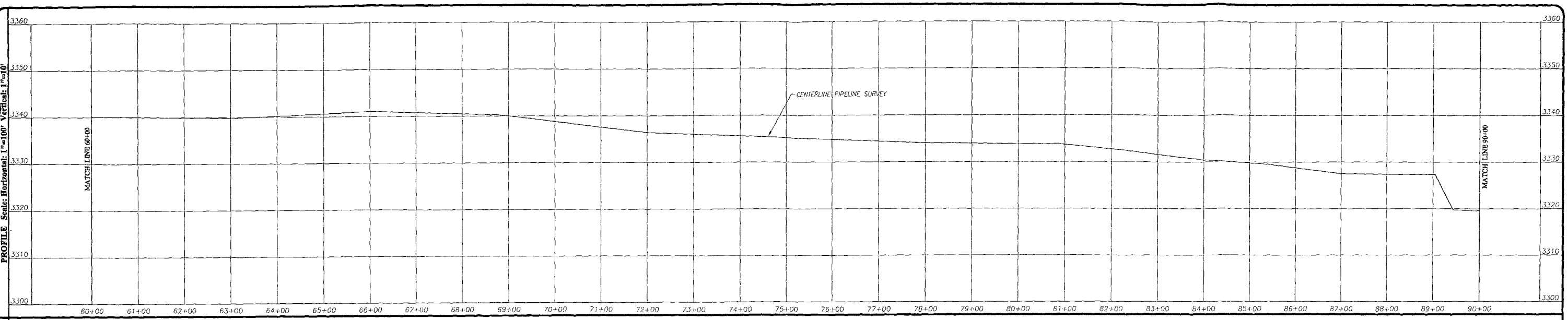
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

60+00 NATURAL GROUND (3340.0')

63+10.4 P.I. 16°58'55" LT. (3339.8')

66+60 NATURAL GROUND (3341.6')

68+73 8" HOLLY BPL (ISO) (3346.3')
69+01 TRAIL ROAD (3340.0')

72+00 NATURAL GROUND (3336.4')

78+00 NATURAL GROUND (3334.0')

78+64 DOUBLE POLE O.H. ELEC. LN. (3334.0')

79+73.2 P.I. 04°05'23" RT. (3333.9')

80+65 5-W BW FENCE LN. (3333.8')
80+79 4-W ELEC. LN. (3333.9')

82+24.6 P.I. 07°58'30" RT. (3332.5')

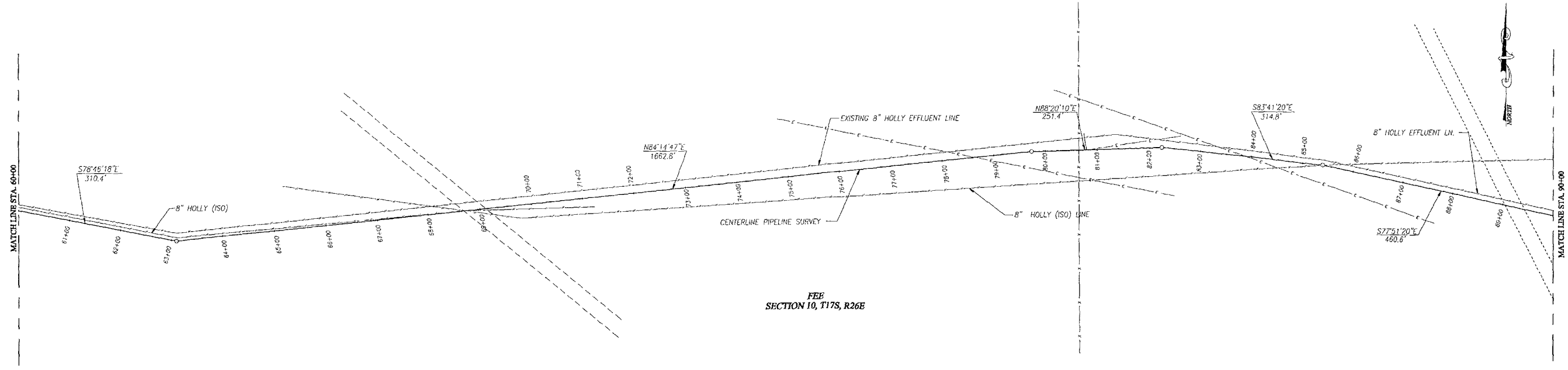
83+87 DOUBLE POLE O.H. ELEC. LN. (3330.6')
84+00 NATURAL GROUND (3330.4')

85+39.4 P.I. 05°40'06" RT. (3328.6')
87+00 8" HOLLY ISO BPL (3327.5')

89+05 TOP EAGLE DRAW @ FNC. LN. (3327.3')
89+43 TOE EAGLE DRAW (3325.7')
89+77 C.L. EAGLE DRAW

90+00 NATURAL GROUND (3326.6')

PLAN VIEW - SCALE 1"=100'



FEE
SECTION 10, T17S, R26E

LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——e—— – DENOTES ELECTRIC LINE
- ——/——/—— – DENOTES EXISTING PIPELINE BY OTHERS
- ——·——·—— – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- ========== – DENOTES EXISTING ROAD

E TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 60 + 00 TO STA. 90 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240

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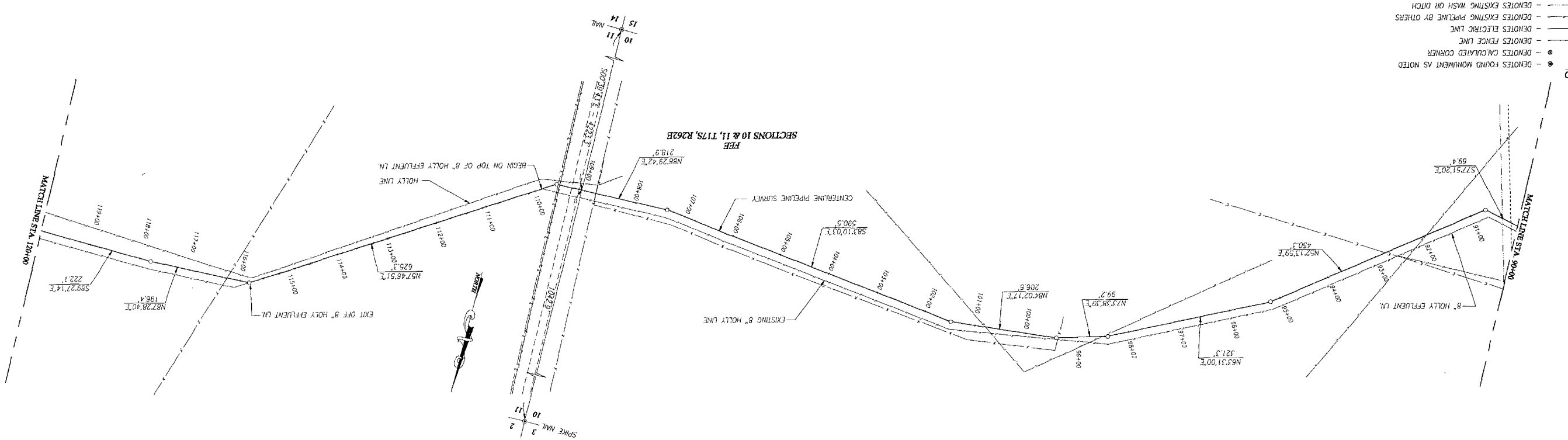
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 90 + 00 TO STA. 120 + 00

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

No.	Rev. By:	Ckd By:	REVISIONS

SEE TITLE SHEET FOR GENERAL NOTES.

LEGEND
- ⊗ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULAIED CORNER
- ——x—— – DENOTES FENCE LINE
- ——e—— – DENOTES ELECTRIC LINE
- ——— – DENOTES EXISTING PIPELINE BY OTHERS
- ·····—— – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = = – DENOTES EXISTING ROAD



STATIONING

90+00 NATURAL GROUND (3319.8')
90+10 TOE EAGLE DRAW (3320.0')
90+39 TOP EAGLE DRAW (3326.6')
90+59.4 P.I. 49°54'41" LT. (3326.0')

91+93 8" HOLLY BPL (3326.6')
92+79 DOUBLE FACE CH. LINK FENCE LN. (3325.9')

95+19.7 P.I. 11°17'01" RT. (3323.6')

96+00 NATURAL GROUND (3323.5')

98+41.0 P.I. 10°01'19" RT. (3322.8')
98+50 HOLLY BPL (3322.7')

99+37 5-W BW FENCE LN. (3322.5')
99+40.2 P.I. 10°23'38" RT. (3322.4')

101+46.8 P.I. 12°47'40" RT. (3321.7')

102+00 NATURAL GROUND (3321.9')

105+80 HOLLY BPL (3321.9')

107+32.3 P.I. 38°26'15" LT. (3322.8')

108+00 NATURAL GROUND (3322.8')
108+79 R.O.W. FENCE LINE (3321.2')
108+83 BURIED FIBER OPTIC CABLE (3320.7')
109+06.0 SECTION LINE
109+17 C.L. CO. RD. #229 (3319.8')
109+50 NEW MEXICO GAS BPL (3316.7')
109+52 5-W BW FENCE LN. (3318.2')
109+52.2 R.O.W. FENCE LINE (3318.2')
109+60 BEGIN ON TOP OF 8" HOLLY EFFLUENT LN. (3318.2')
109+85

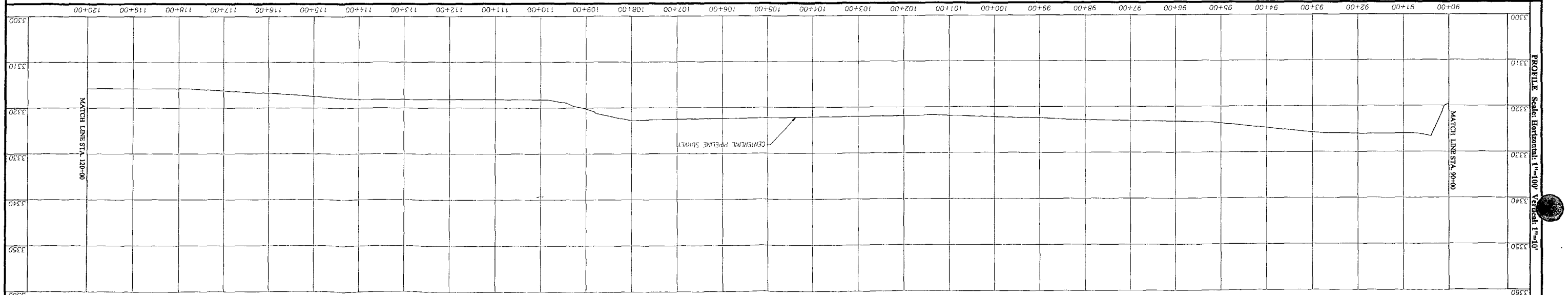
114+81.5 P.I. 29°41'48" RT. (3316.8')
& EXIT OFF 8" HOLLY EFFLUENT LN.

116+26 5-W BW FNC. LN. (3316.7')

117+27.9 P.I. 03°24'06" RT. (3315.8')

120+00 NATURAL GROUND (3315.8')

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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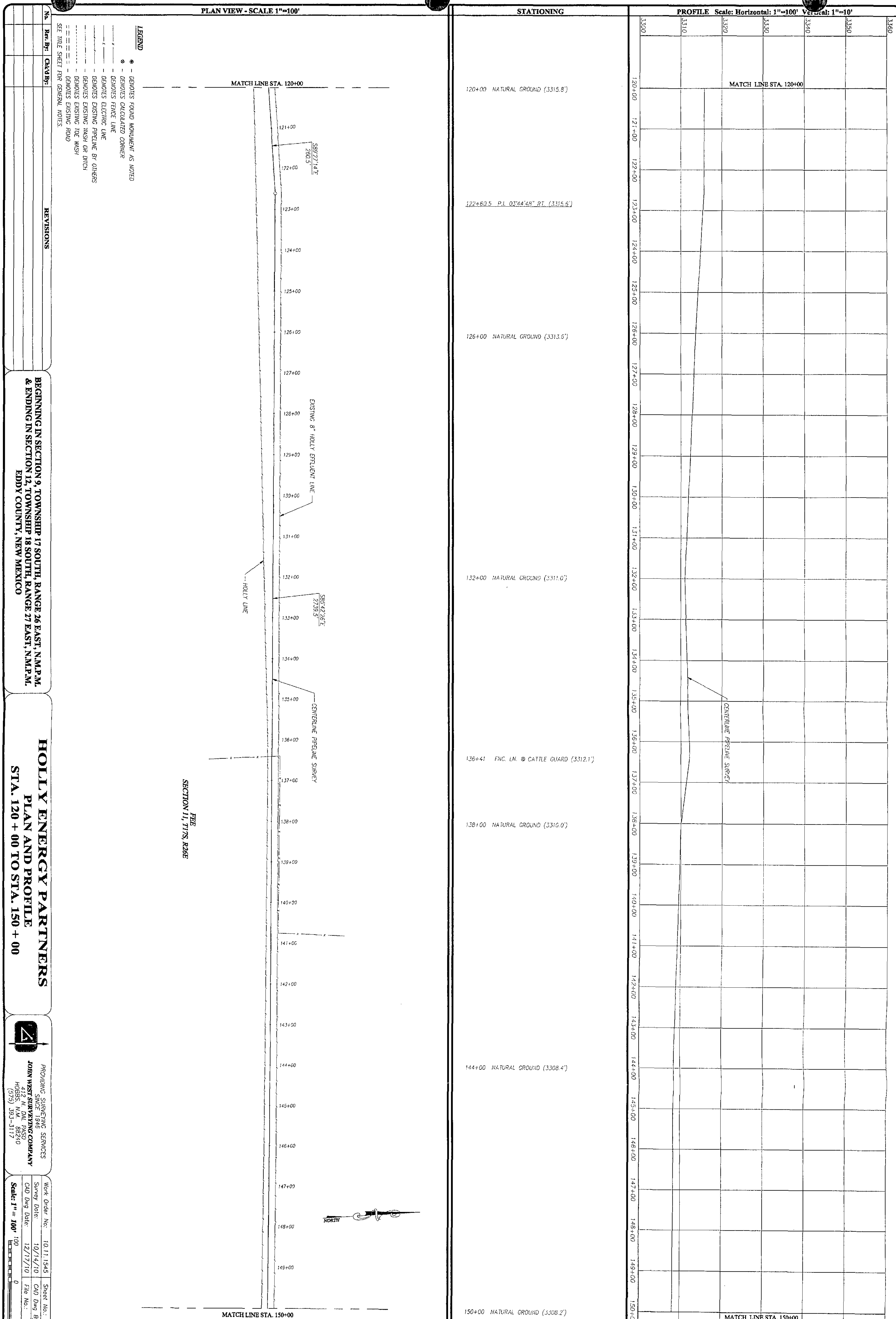
Scale: 1" = 100' 100 0 100 200 FEET



PLAN VIEW - SCALE 1"=100'
STATIONING
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'
LEGEND
● - DENOTES FOUND MONUMENT AS NOTED
● - DENOTES CALCULATED CORNER
—x— - DENOTES FENCE LINE
—E— - DENOTES ELECTRIC LINE
- DENOTES EXISTING PIPELINE BY OTHERS
- DENOTES EXISTING WASH OR DITCH
- DENOTES EXISTING TOE WASH
- DENOTES EXISTING ROAD
SEE TITLE SHEET FOR GENERAL NOTES.
No. Rev. By: Chk'd By: REVISIONS
MATCH LINE STA. 120+00
S89°27'14"E 250.5
EXISTING 8" HOLLY EFFLUENT LINE
HOLLY LINE
S89°42'26"E 2739.5
CENTERLINE PIPELINE SURVEY
FEE SECTION 11, T17S, R26E
NORTH
MATCH LINE STA. 150+00
120+00 NATURAL GROUND (3315.8')
122+69.5 P.I. 03°44'48" RT. (3315.6')
126+00 NATURAL GROUND (3313.6')
132+00 NATURAL GROUND (3311.0')
136+41 FNC. LN. @ CATTLE GUARD (3312.1')
138+00 NATURAL GROUND (3310.0')
144+00 NATURAL GROUND (3308.4')
150+00 NATURAL GROUND (3308.2')
3300 3310 3320 3330 3340 3350 3360
BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 120 + 00 TO STA. 150 + 00
PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117
Work Order No: 10.11.1545
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CAD Dwg By: LA
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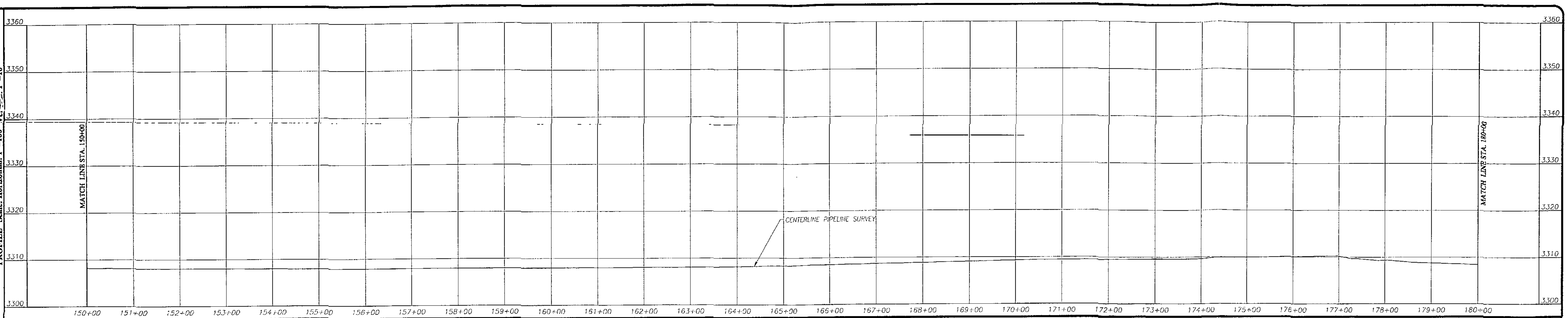
Scale: 1" = 100'
100 0 100 200 FEET

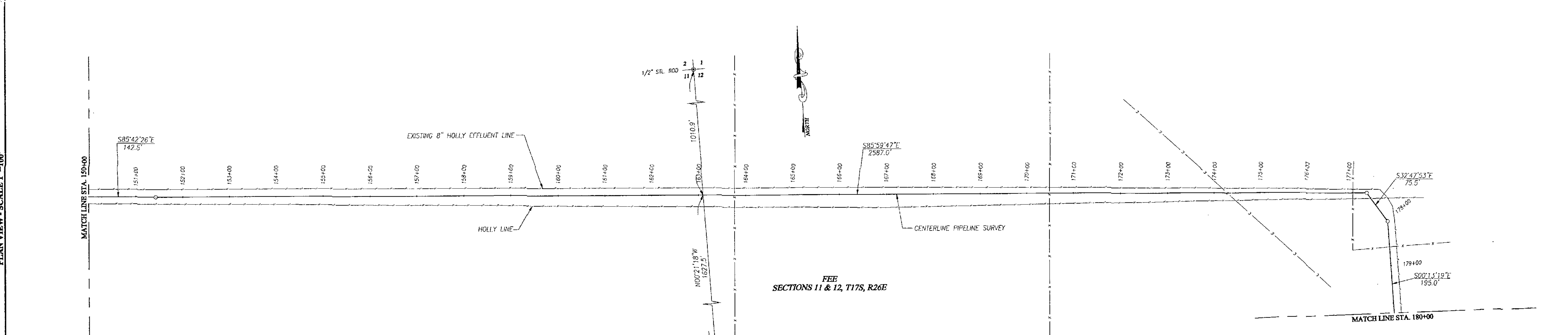
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

150+00 NATURAL GROUND (3308.2')
151+42.5 P.I. 00°17'21" LT. (3308.1')
156+00 NATURAL GROUND (3307.9')
162+00 NATURAL GROUND (3308.0')
163+09.5 SECTION LINE
163+76 5-W BW FNC. LN. (3308.1')
168+00 NATURAL GROUND (3308.9')
170+49 5-W BW FNC. LN. (3309.4')
174+00 NATURAL GROUND (3309.6')
174+29 DOUBLE POLE ELEC. LN. (3309.9')
176+99 5-W BW FNC. LN. (3310.2')
177+29.5 P.I. 53°11'54" RT. (3309.7')
177+44 HOLLY BPL (3309.6')
177+88 HOLLY BPL (3309.3')
178+05.0 P.I. 32°34'34" RT. (3309.4')
178+60 5-W BW FNC. LN. (3308.9')
180+00 NATURAL GROUND (3308.4')

PLAN VIEW - SCALE 1"=100'



LEGEND

- DENOTES FOUND MONUMENT AS NOTED
- DENOTES CALCULATED CORNER
- DENOTES FENCE LINE
- DENOTES ELECTRIC LINE
- DENOTES EXISTING PIPELINE BY OTHERS
- DENOTES EXISTING WASH OR DITCH
- DENOTES EXISTING TOE WASH
- DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

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BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 150 + 00 TO STA. 180 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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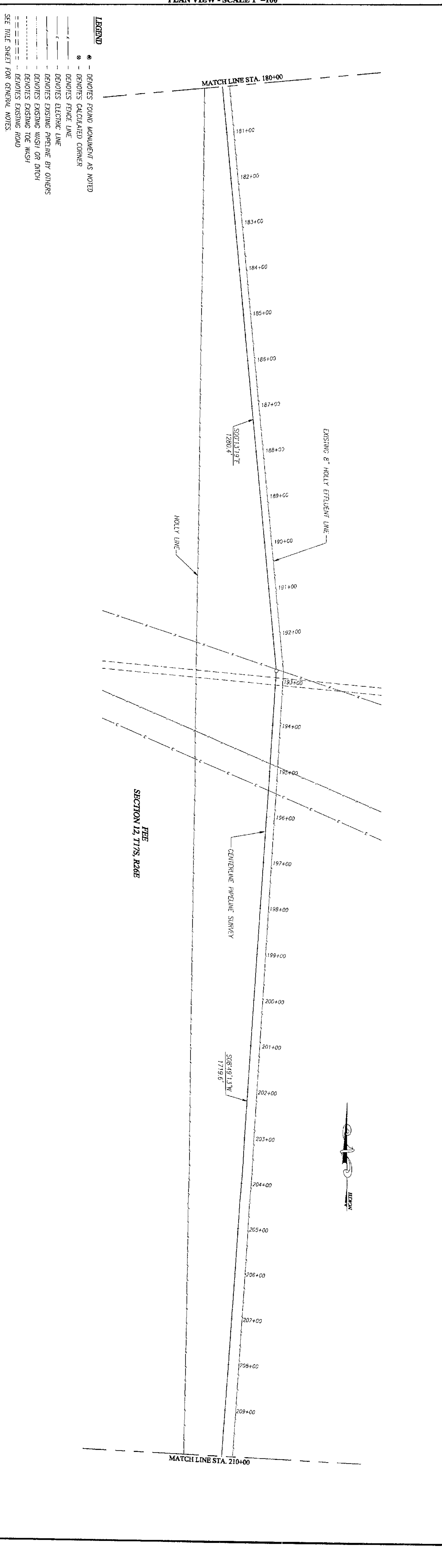
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

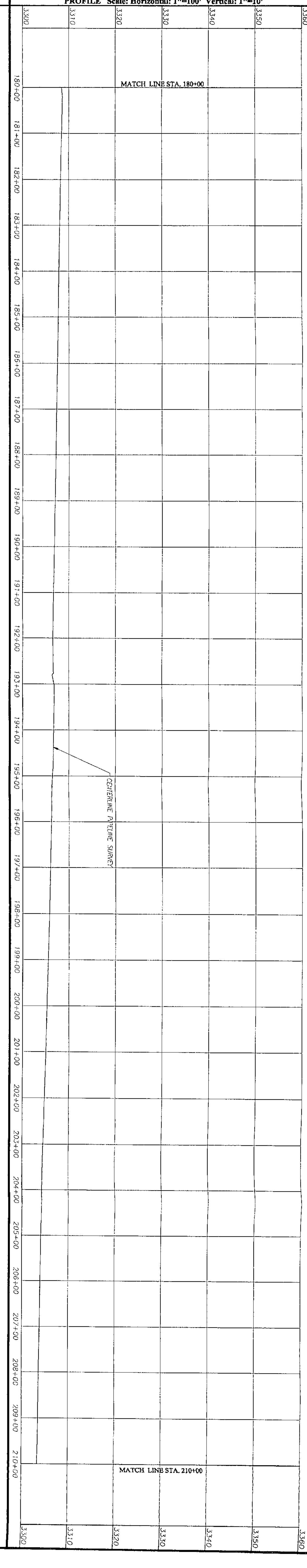
PLAN VIEW - SCALE 1"=100'



STATIONING

180+00 NATURAL GROUND (3309.4')
180+21 DOUBLE POLE O.H. ELEC. LN. (3308.6')
186+00 NATURAL GROUND (3307.5')
192+00 NATURAL GROUND (3306.5')
192+77 4-W BW FNC. LN. (3306.7')
192+80.4 P.I. 09°02'32" RT. (3306.4')
193+03 TRAIL ROAD (3306.9')
194+83 AGAVE BPL (3306.6')
195+42 DOUBLE POLE O.H. ELEC. LN. (3306.3')
198+00 NATURAL GROUND (3305.8')
204+00 NATURAL GROUND (3304.3')
210+00 NATURAL GROUND (3303.4')

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



No.	Rev. By:	Chk'd By:	REVISIONS

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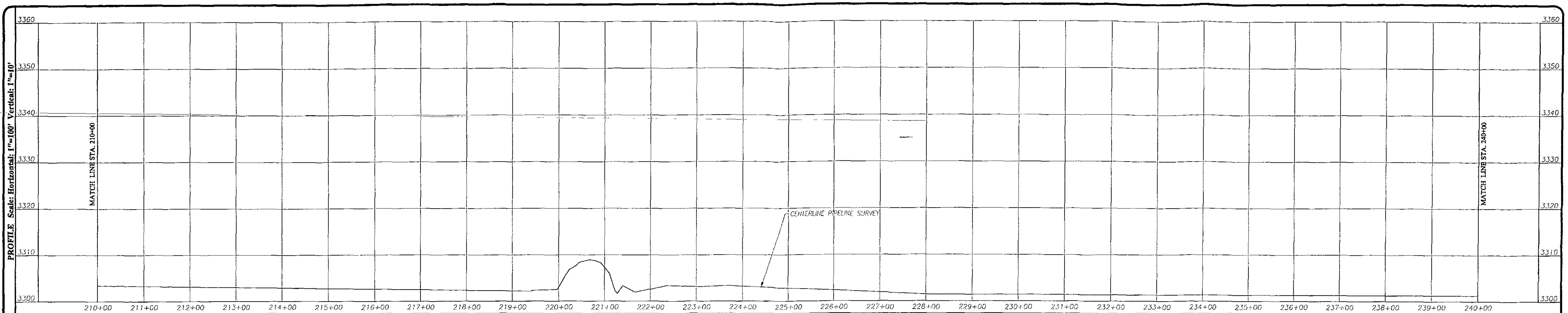
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 180 + 00 TO STA. 210 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	8 of 24
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/17/10	File No.:	E-3136
Scale: 1" = 100'	100 0 100 200 FEET		

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

210+00 NATURAL GROUND (3303.4')

216+00 NATURAL GROUND (3302.5')

219+23.7 SECTION LINE
219+41 R.O.W. FNC. LN. (3302.3')
219+43 BURIED FIBER OPTIC CABLE (3302.3')
220+67.8 C.L. HWY. #82 (3309.0')
221+40 R.O.W. FENCE LN. (3303.4')

221+67 HOLLY BPL (3301.5')
221+99 HOLLY BPL (3302.6')
222+36 HOLLY BPL (3303.4')
222+77 HOLLY BPL (3303.2')

223+00.6 P.I. 35°25'16" LT. (3303.1')
223+68.0 P.I. 41°40'00" LT. (3303.4')

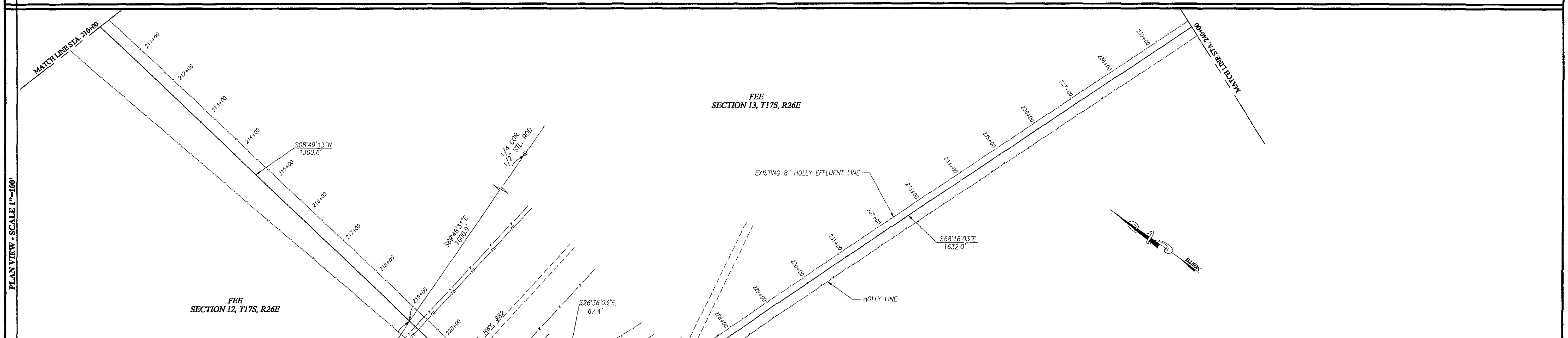
226+59 TRAIL ROAD (3302.1')

228+00 NATURAL GROUND (3301.4')

234+00 NATURAL GROUND (3301.3')

240+00 NATURAL GROUND (3301.2')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊛ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- —x— – DENOTES FENCE LINE
- —E— – DENOTES ELECTRIC LINE
- – DENOTES EXISTING PIPELINE BY OTHERS
- – DENOTES EXISTING WASH OR DITCH
- – DENOTES EXISTING TOE WASH
- —FO— – DENOTES BURIED FIBER OPTIC CABLE
- ==== – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 210 + 00 TO STA. 240 + 00

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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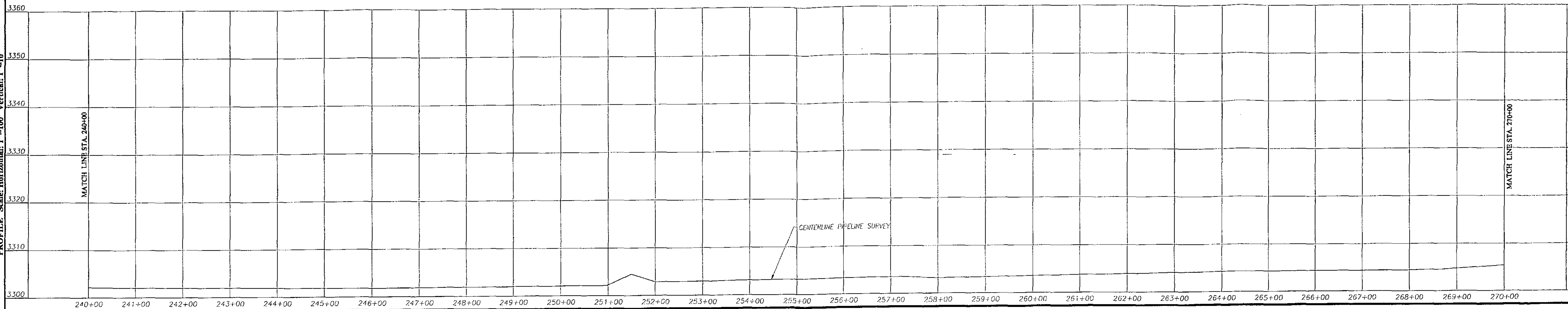
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

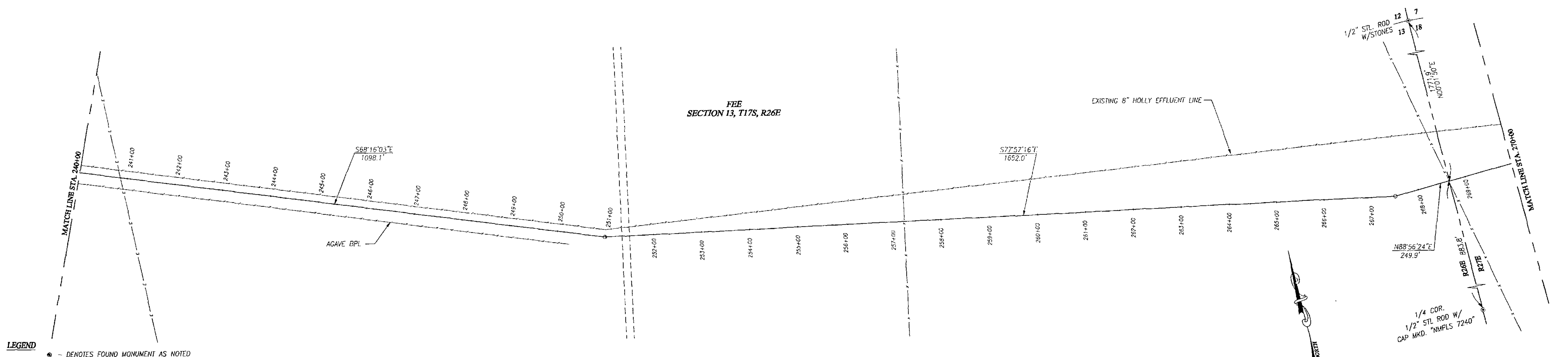
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

240+00 NATURAL GROUND (3301.2')
240+86 DOUBLE POLE O.H. ELEC. LN. (3301.2')
246+00 NATURAL GROUND (3300.9')
250+98.1 P.I. 09°41'13" LT. (3301.3')
251+49 TRAIL ROAD (3303.6')
257+23 5-W BW FNC. LN. (3302.7')
264+00 NATURAL GROUND (3303.4')
267+50.1 P.I. 13°05'20" LT. (3303.5')
268+66 5-W BW FNC. LN. (3303.7')
268+67.0 SECTION LINE
270+00 NATURAL GROUND (3304.5')

PLAN VIEW - SCALE 1"=100'



LEGEND

- DENOTES FOUND MONUMENT AS NOTED
- DENOTES CALCULATED CORNER
- DENOTES FENCE LINE
- DENOTES ELECTRIC LINE
- DENOTES EXISTING PIPELINE BY OTHERS
- DENOTES EXISTING WASH OR DITCH
- DENOTES EXISTING TOE WASH
- DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 240 + 00 TO STA. 270 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	10 of 24
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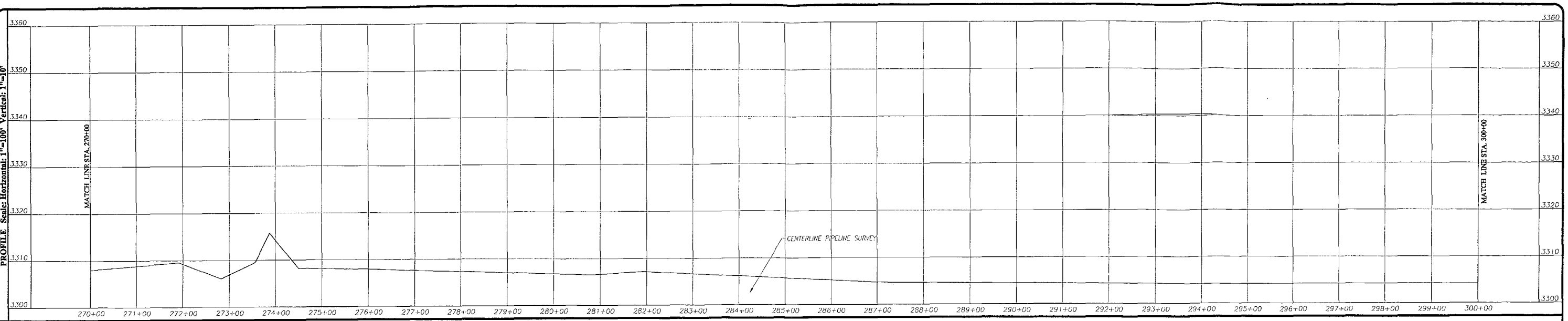
CAD Dwg Date:	12/17/10	File No.:	E-3336
Scale: 1" = 100'	100 0 100 200 FEET		

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

270+00 NATURAL GROUND (3304.5')

271+91 WEST TOP BANK PECOS RIVER (3306.1')

272+82 EAST TOP BANK PECOS RIVER (3302.6')

274+36 NATURAL GROUND (3308.1')

273+86 NATURAL GROUND (3312.3')

274+49 NATURAL GROUND (3304.7')

275+15 8" HOLLY EFFLUENT LN

276+00 NATURAL GROUND (3304.5')

280+29.8 P.I. 35°10'58" RT. (3303.1')

280+92 8" HOLLY EFFLUENT LN.

281+94.6 P.I. 14°27'25" RT. (3303.7')

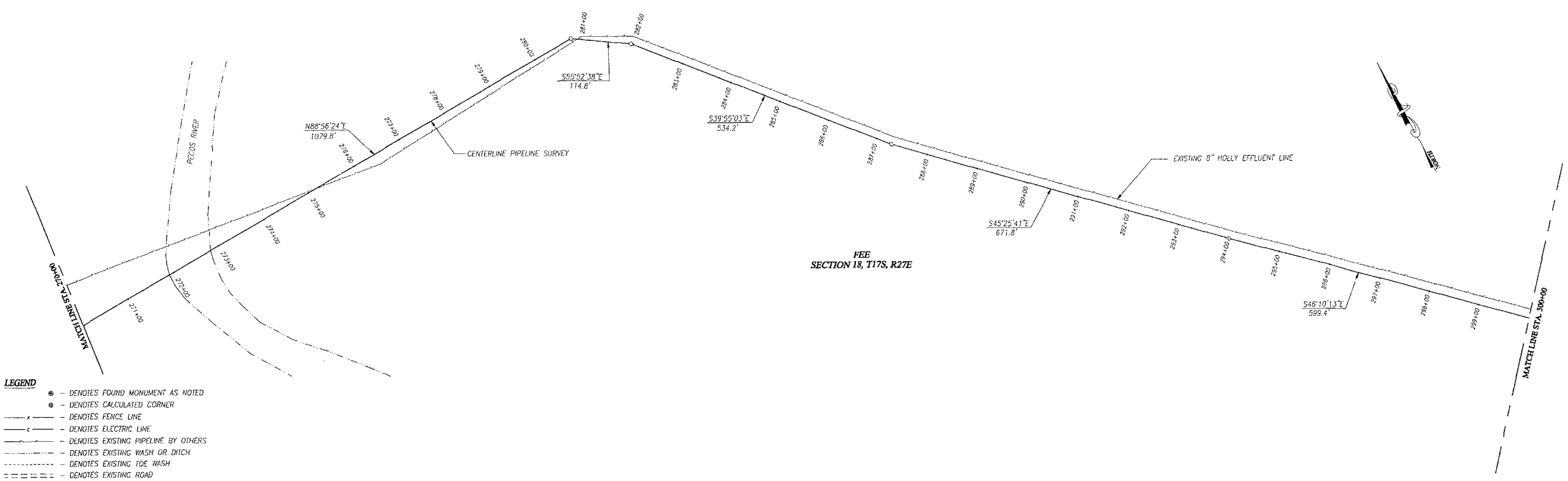
287+28.8 P.I. 05°30'28" LT. (3301.2')

288+10 NATURAL GROUND (3301.2')

234+29.6 P.I. 00°43'32" LT. (3300.8')

300+00 NATURAL GROUND (3300.8')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——e—— – DENOTES ELECTRIC LINE
- ——/——/—— – DENOTES EXISTING PIPELINE BY OTHERS
- ——·——·—— – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS

PLAN AND PROFILE

STA. 270 + 00 TO STA. 300 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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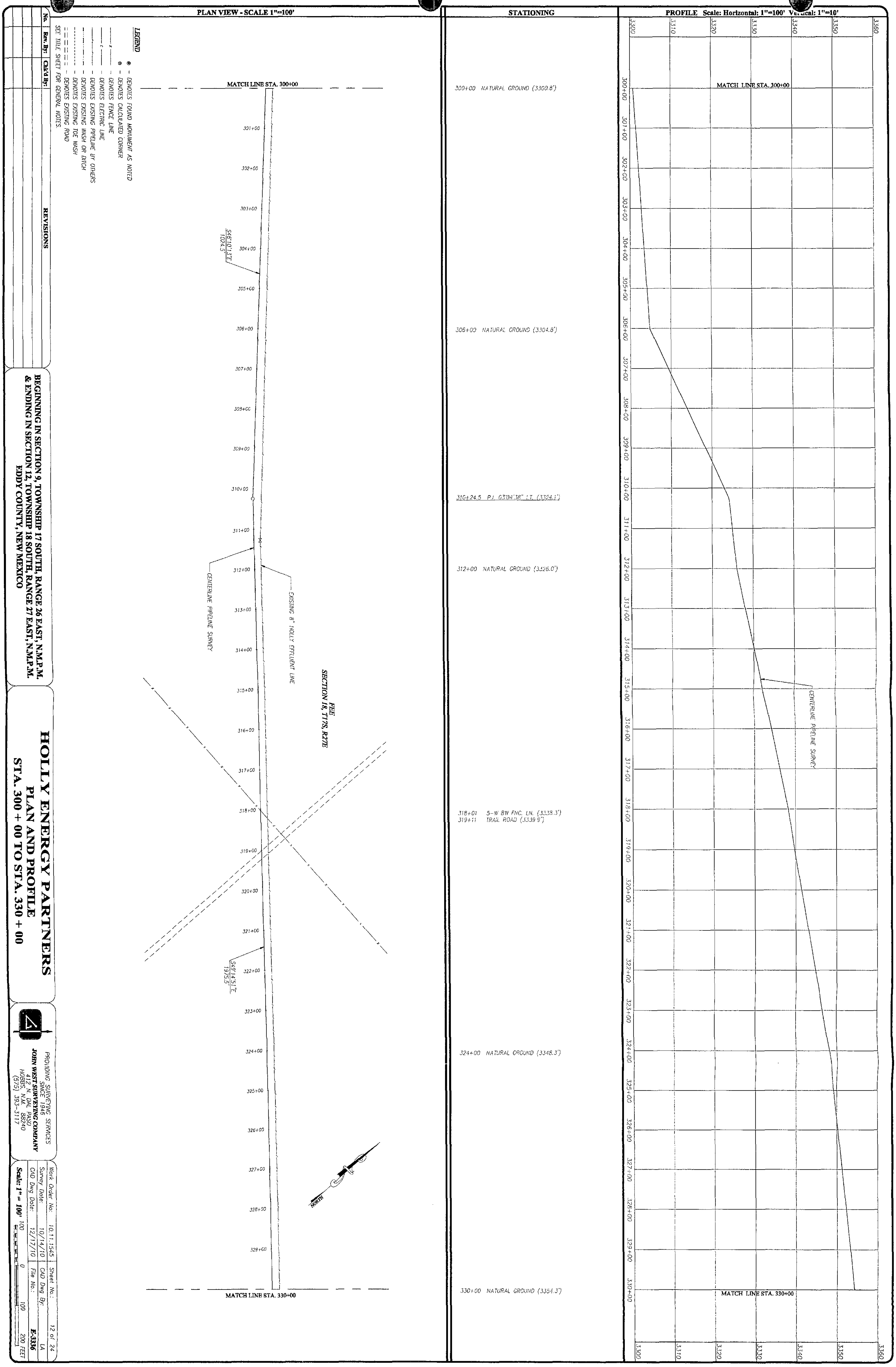
Scale: 1" = 100' 100 0 100 200 FEET



PLAN VIEW - SCALE 1"=100'
STATIONING
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'
LEGEND
⊕ - DENOTES FOUND MONUMENT AS NOTED
⊗ - DENOTES CALCULATED CORNER
— DENOTES FENCE LINE
— DENOTES ELECTRIC LINE
— DENOTES EXISTING PIPELINE BY OTHERS
— DENOTES EXISTING WASH OR DITCH
— DENOTES EXISTING TOE WASH
— DENOTES EXISTING ROAD
SEE TITLE SHEET FOR GENERAL NOTES.
No. Rev. By: Chk'd By: REVISIONS
MATCH LINE STA. 300+00
S46°10'13"E 1024.5'
CENTERLINE PIPELINE SURVEY
EXISTING 8" HOLLY EFFLUENT LINE
FEE SECTION 18, T17S, R27E
S49°14'51"E 1975.5'
NORTH
MATCH LINE STA. 330+00
300+00 NATURAL GROUND (3300.8')
306+00 NATURAL GROUND (3304.8')
310+24.5 P.I. 03°04'38" LT. (3324.1')
312+00 NATURAL GROUND (3326.0')
318+01 5-W BW FNC. LN. (3338.3')
319+11 TRAIL ROAD (3339.9')
324+00 NATURAL GROUND (3348.3')
330+00 NATURAL GROUND (3354.3')
3300 3310 3320 3330 3340 3350 3360
BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 300 + 00 TO STA. 330 + 00
PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117
Work Order No: 10.11.1545
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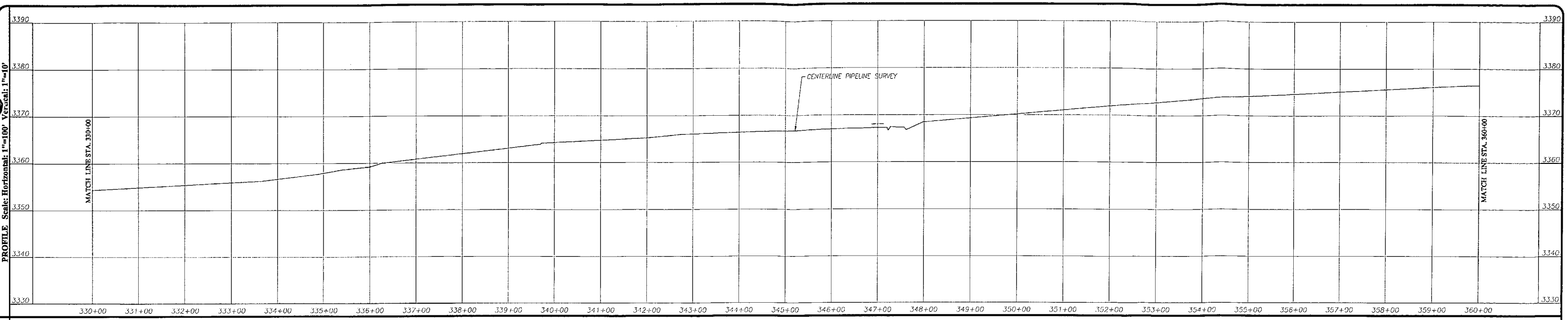
CAD Dwg Date: 12/17/10
File No: E-3336
Scale: 1" = 100'
100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

330+00 NATURAL GROUND (3354.3')

333+65.8 P.I. 63°45'42" LT. (3356.2')

334+89 HOLLY BPL (3357.7')
335+41 HOLLY BPL (3358.6')

336+60 NATURAL GROUND (3359.2')
336+26 2-W ELEC. LN. (3359.9')
336+29 4-W BW FNC. LN.
336+29.2 N-S SECTION LINE

339+69.0 E-W SECTION LINE
339+70 4-W BW FNC. LN. (3363.9')
339+72 4-W ELEC. LN. (3364.2')

342+60 NATURAL GROUND (3365.3')

342+74.2 P.I. 01°11'47" RT. (3366.0')

346+39 NATURAL GROUND (3367.2')

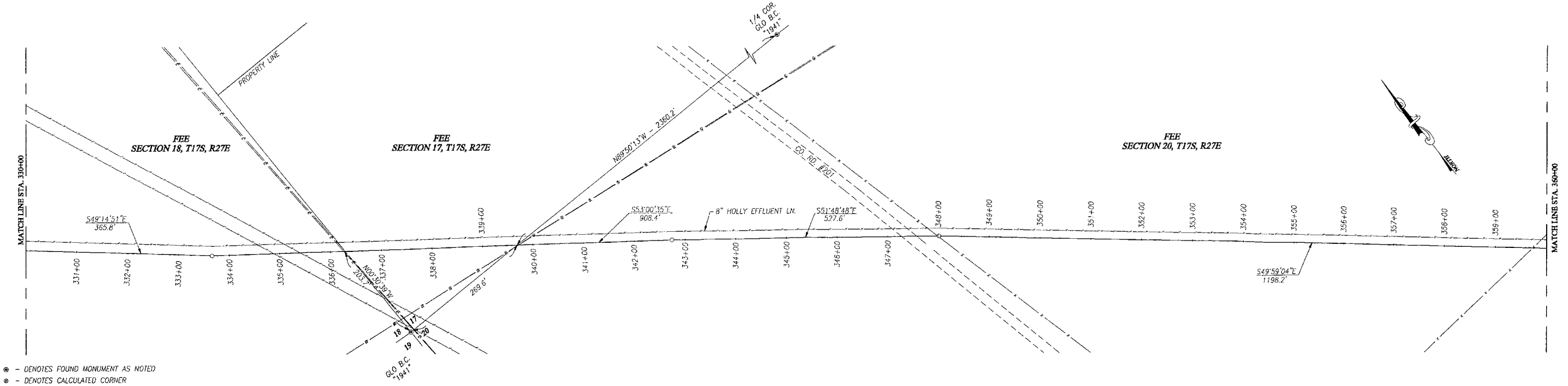
347+42.5 C.L. CO. RD. #201 (3367.4')
347+99 4-W BW FNC. LN. (3368.5')
348+01.8 P.I. 01°49'44" RT. (3368.5')

354+60 NATURAL GROUND (3373.6')

359+74 4-W BW FNC. LN. (3376.4')

360+60 NATURAL GROUND (3376.5')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ◉ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——ℓ—— – DENOTES ELECTRIC LINE
- ——————— – DENOTES EXISTING PIPELINE BY OTHERS
- – · – · – – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 330 + 00 TO STA. 360 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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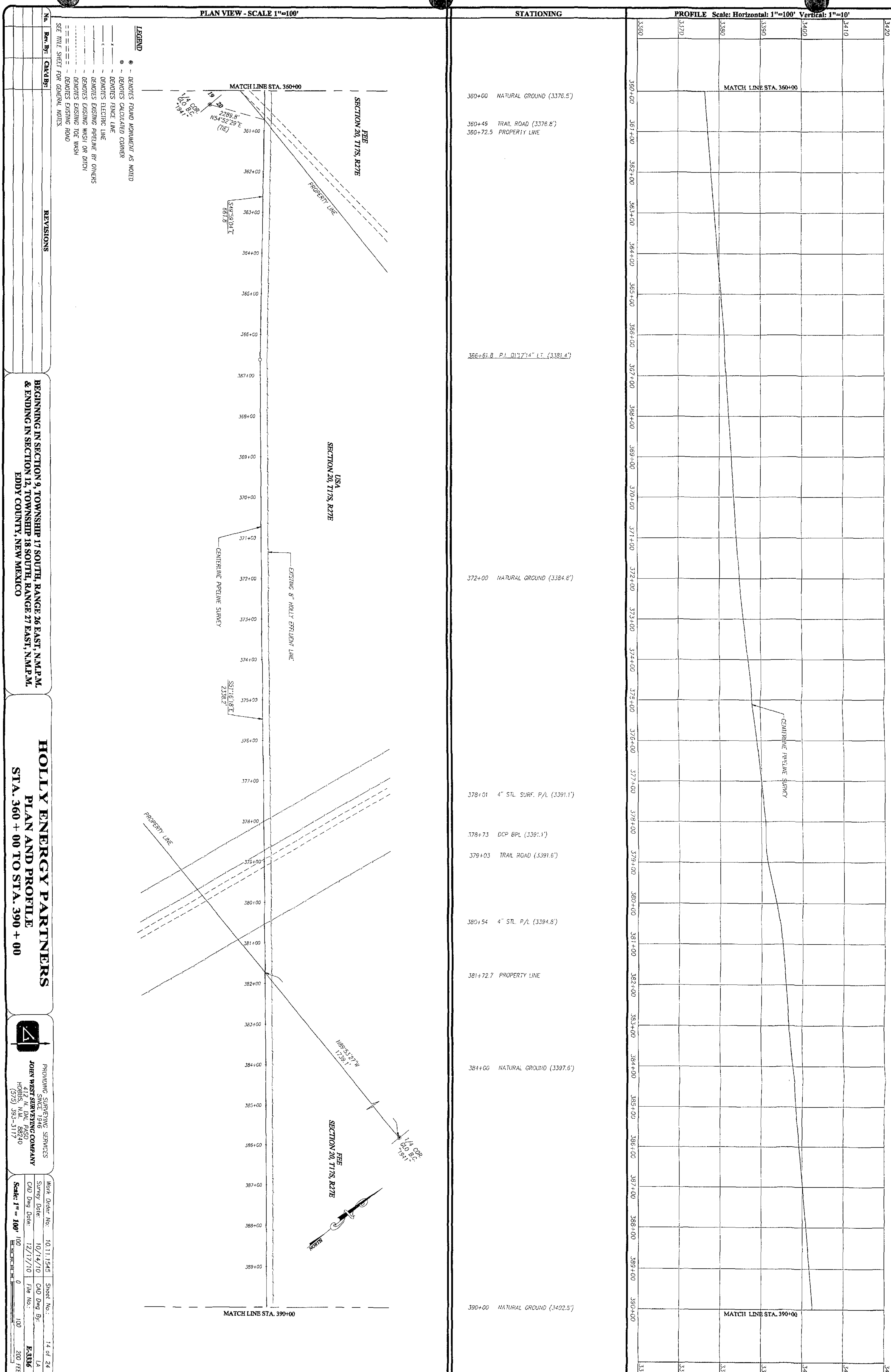
Scale: 1" = 100' 100 0 100 200 FEET



PLAN VIEW - SCALE 1"=100'
STATIONING
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'
LEGEND
- DENOTES FOUND MONUMENT AS NOTED
- DENOTES CALCULATED CORNER
- DENOTES FENCE LINE
- DENOTES ELECTRIC LINE
- DENOTES EXISTING PIPELINE BY OTHERS
- DENOTES EXISTING WASH OR DITCH
- DENOTES EXISTING TOE WASH
- DENOTES EXISTING ROAD
SEE TITLE SHEET FOR GENERAL NOTES.
No. Rev. By: Chk'd By: REVISIONS
BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 360 + 00 TO STA. 390 + 00
PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117
Work Order No: 10.11.1545
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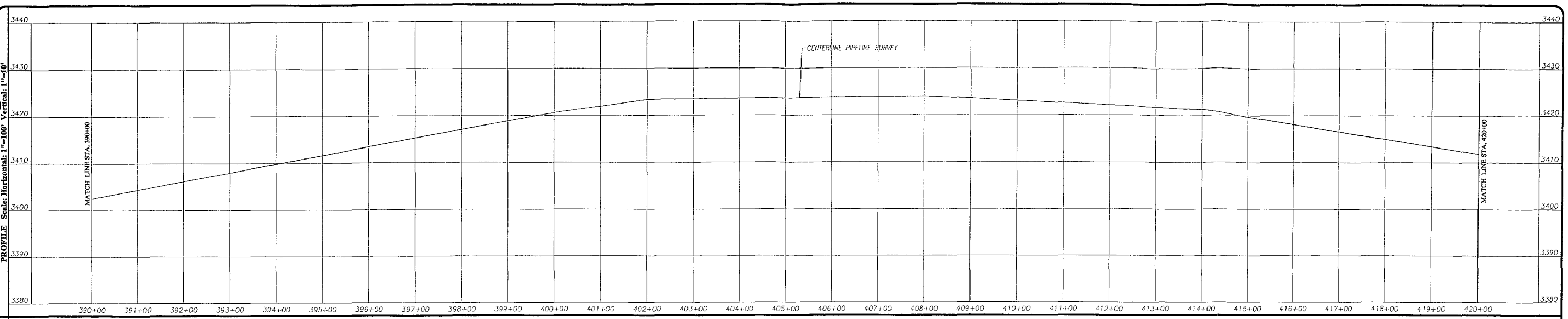
CAD Dwg By: LA
CAD Dwg Date: 12/17/10
File No.: E-3336
Scale: 1" = 100'
100 0 100 200 FEET
MATCH LINE STA. 360+00
FEE SECTION 20, T17S, R27E
USA SECTION 20, T17S, R27E
FEE SECTION 20, T17S, R27E
PROPERTY LINE
CENTERLINE PIPELINE SURVEY
EXISTING 8" HOLLY EFFLUENT LINE
MATCH LINE STA. 390+00
360+00 NATURAL GROUND (3376.5')
360+49 TRAIL ROAD (3376.8')
360+72.5 PROPERTY LINE
366+61.8 P.I. 01°17'14" LT. (3381.4')
372+00 NATURAL GROUND (3384.8')
378+01 4" STL. SURF. P/L (3391.1')
378+73 DCP BPL (3391.1')
379+03 TRAIL ROAD (3391.6')
380+54 4" STL. P/L (3394.8')
381+72.7 PROPERTY LINE
384+00 NATURAL GROUND (3397.6')
390+00 NATURAL GROUND (3402.5')
3360 3370 3380 3390 3400 3410 3420

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

390+00 NATURAL GROUND (3402.5')

396+00 NATURAL GROUND (3413.4')

399+81 TRAIL ROAD (3420.3')

402+00 NATURAL GROUND (3423.4')

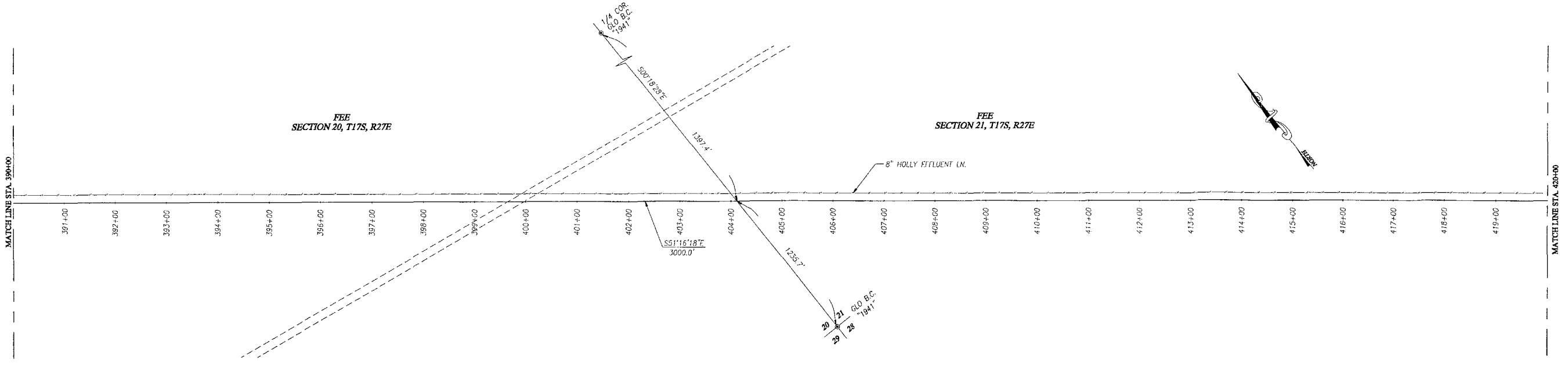
404+11.6 N-S SECTION LINE

408+00 NATURAL GROUND (3424.0')

414+00 NATURAL GROUND (3421.2')

420+00 NATURAL GROUND (3411.8')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊕ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——e—— – DENOTES ELECTRIC LINE
- ——————— – DENOTES EXISTING PIPELINE BY OTHERS
- ——·——·—— – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS

PLAN AND PROFILE

STA. 390 + 00 TO STA. 420 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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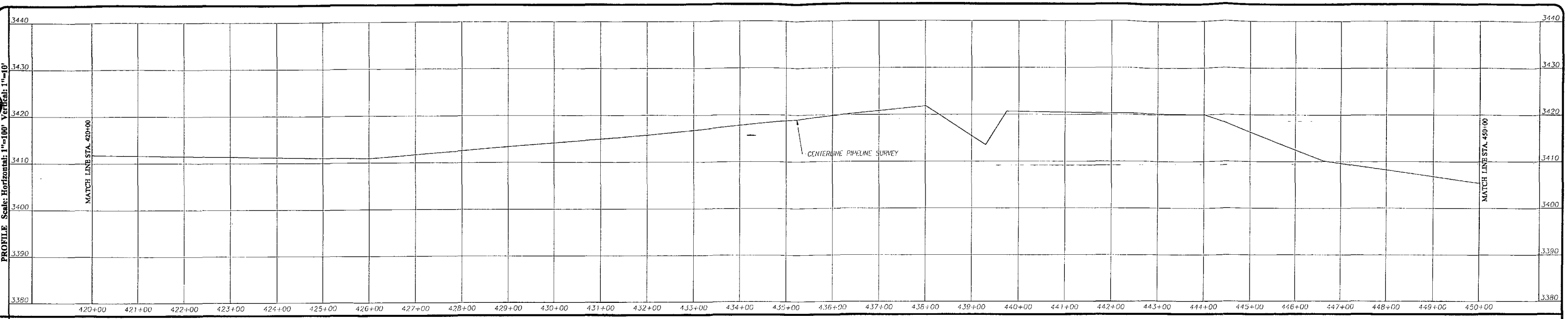
Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

420+00 NATURAL GROUND (3411.8')

423+97.9 E-W SECTION LINE

426+00 NATURAL GROUND (3411.0')

432+00 NATURAL GROUND (3415.8')

438+01 TOP EDGE WASH (3419.8')

439+30 C.L. WASH (3413.6')

439+74 TOP EDGE WASH (3420.7')

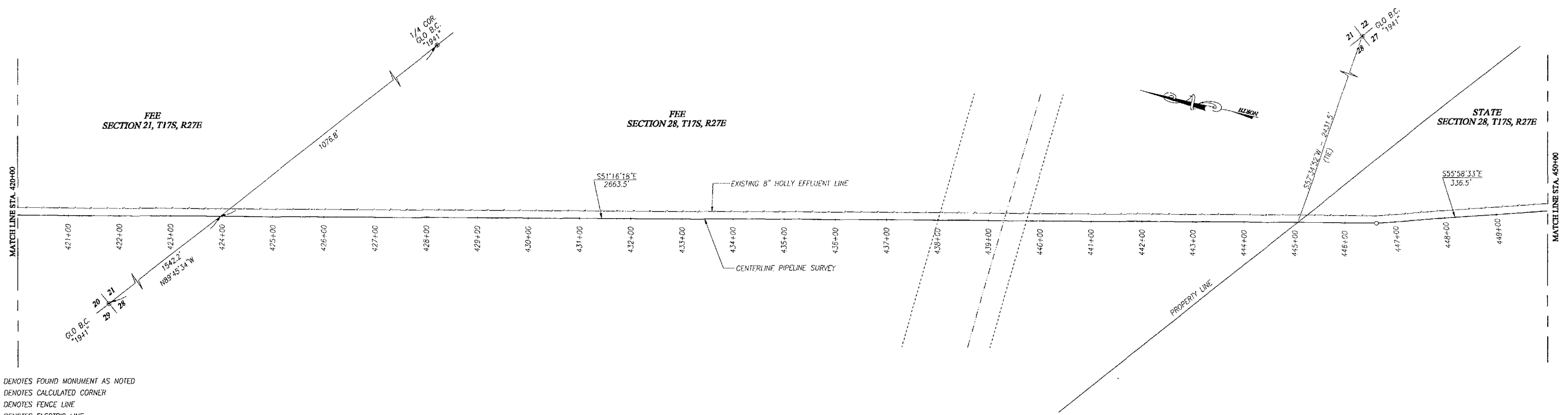
444+00 NATURAL GROUND (3420.0')

445+05.7 PROPERTY LINE

446+63.5 P.I. 04°40'15" LT. (3410.1')

450+00 NATURAL GROUND (3405.4')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——E—— – DENOTES ELECTRIC LINE
- ——✓——✓—— – DENOTES EXISTING PIPELINE BY OTHERS
- ——·——·—— – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS

PLAN AND PROFILE

STA. 420 + 00 TO STA. 450 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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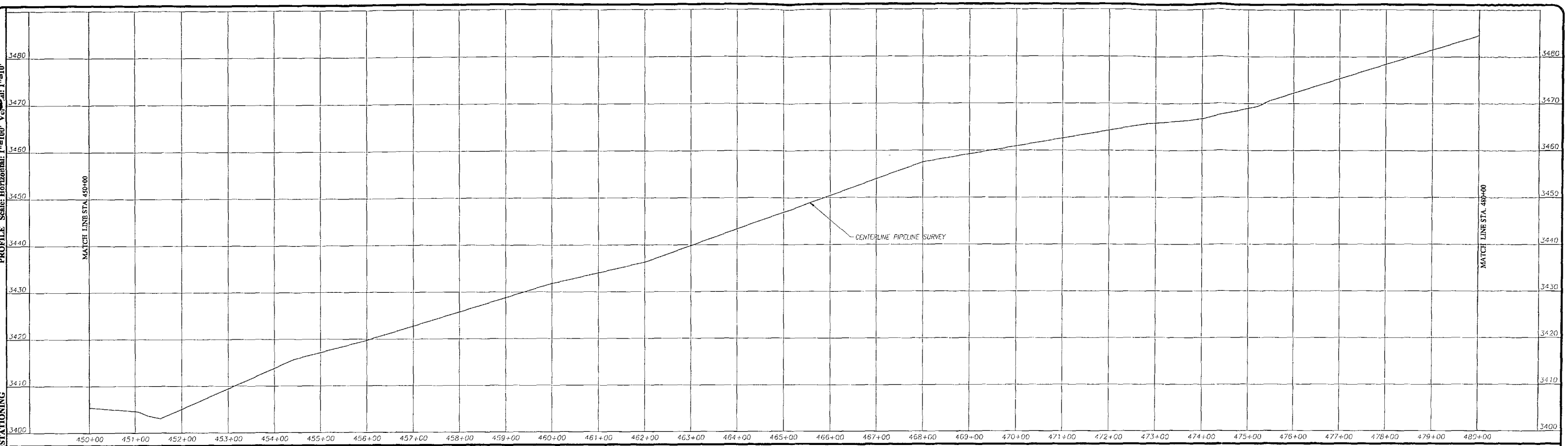
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

450+00 NATURAL GROUND (3405.4')

451+02.2 P.I. 03°30'37" RT. (3404.6')

451+04 ACME BPL (3404.6')

451+27 ACME BPL (3401.7')

451+54.8 P.I. 03°42'33" RT. (3401.1')

454+43 DCP BPL (3415.7')

455+99 TRAIL ROAD (3419.7')

460+01.0 P.I. 02°36'56" LT. (3431.8')

462+00 NATURAL GROUND (3436.3')

466+07.2 PROPERTY LINE

468+00 NATURAL GROUND (3457.5')

471+83.2 N-S SECTION LINE

472+83 DOUBLE POLE O.H. ELEC. LIN. (3465.7')

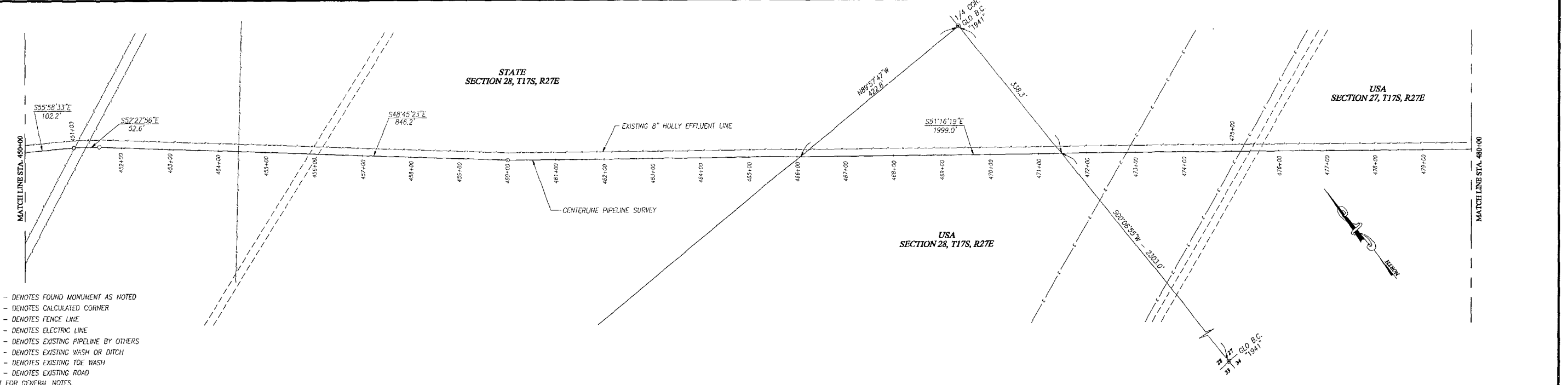
474+00 NATURAL GROUND (3466.7')

475+19 DOUBLE POLE O.H. ELEC. LIN. (3465.4')

475+48 C.L. TRAIL ROAD (3470.7')

480+00 NATURAL GROUND (3484.6')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——E—— – DENOTES ELECTRIC LINE
- ——P—— – DENOTES EXISTING PIPELINE BY OTHERS
- – · – · – – DENOTES EXISTING WASH OR DITCH
- – – – – – DENOTES EXISTING TOE WASH
- = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS

PLAN AND PROFILE

STA. 450 + 00 TO STA. 480 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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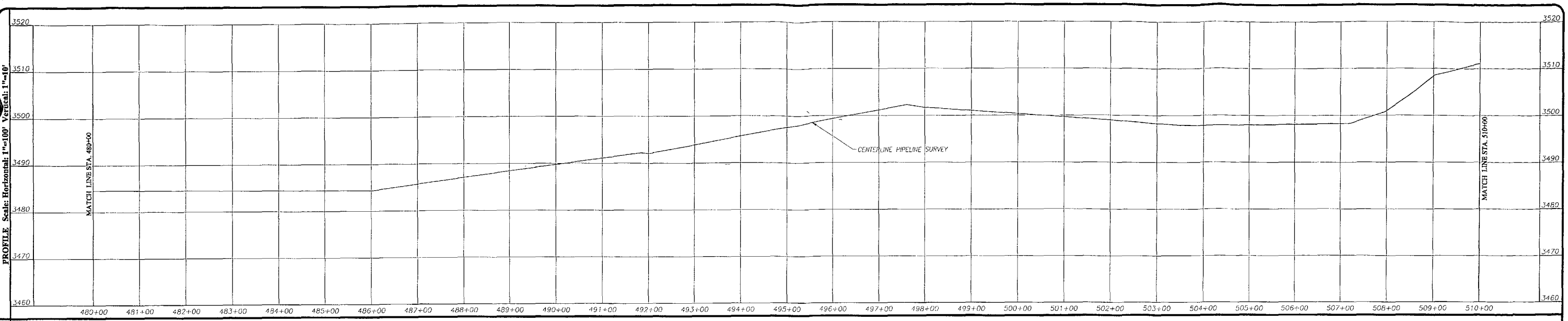
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

480+00 NATURAL GROUND (3484.6')

485+00 NATURAL GROUND (3484.4')

491+84 (2) 4" POLY SURF P/L (3492.2')

492+00 NATURAL GROUND (3492.1')

497+61 AGAVE BPL (3502.3')

498+00 NATURAL GROUND (3501.7')

503+48 4-W O.H. ELEC LN. (3498.0')

503+94 FRONTIER BPL (3497.8')

504+00 NATURAL GROUND (3497.8')

507+21.9 P.I. 02°47'56" LT. (3498.2')

507+59.9 E-W SECTION LINE

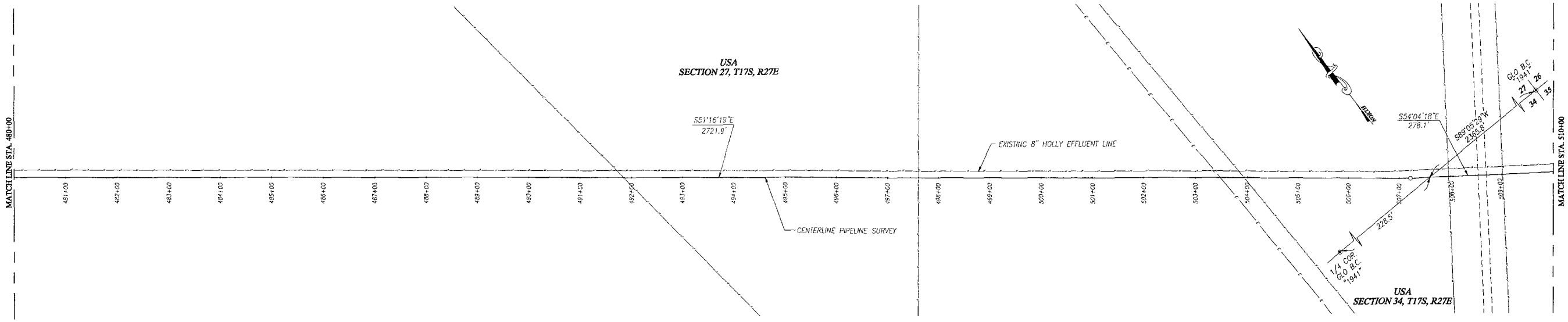
507+97 3" POLY SURF. P/L (3500.9')

508+62 TRAIL ROAD (3505.3')

509+02 (2) 3" POLY SURF. P/L (3508.6')

510+00 NATURAL GROUND (3511.2')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——e—— – DENOTES ELECTRIC LINE
- – DENOTES EXISTING PIPELINE BY OTHERS
- – DENOTES EXISTING WASH OR DITCH
- – DENOTES EXISTING TOE WASH
- – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 480 + 00 TO STA. 510 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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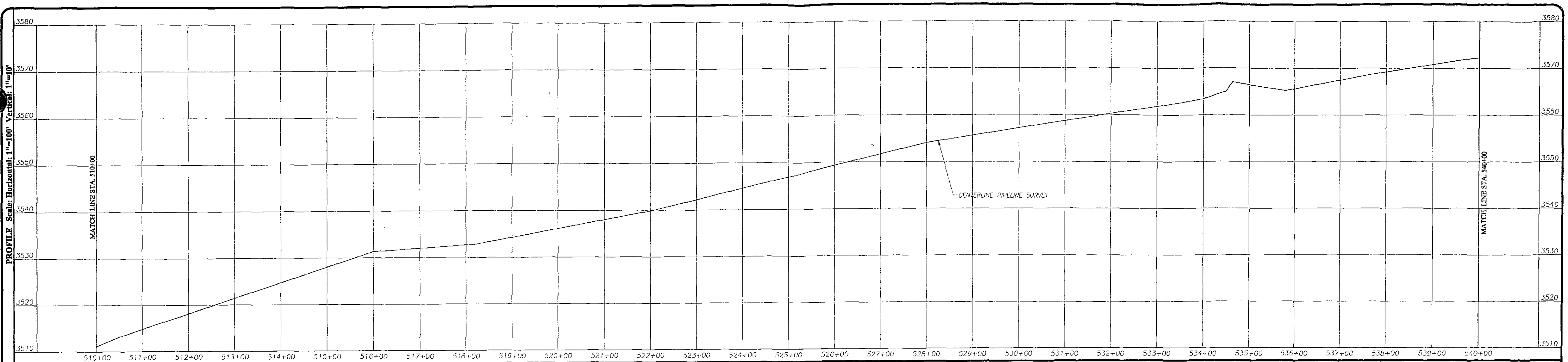
Scale: 1" = 100' 100 0 100 200 FEET

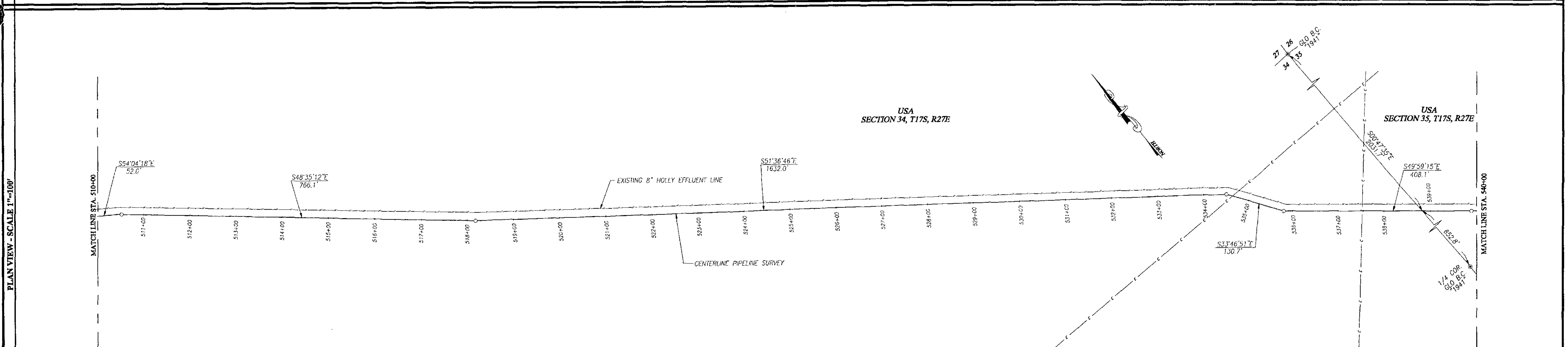
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

510+00 NATURAL GROUND (3511.2')
510+52.0 P.I. 05°29'06" RT. (3513.2')
516+00 NATURAL GROUND (3531.3')
518+18.1 P.I. 03°01'34" LT. (3532.8')
522+00 NATURAL GROUND (3539.9')
528+00 NATURAL GROUND (3554.1')
534+00 NATURAL GROUND (3563.5')
534+50.1 P.I. 17°49'55" RT. (3564.9')
534+64 4-W ELEC. LN. (3567.0')
535+80.8 P.I. 15°12'24" LT. (3566.3')
537+53 4-W ELEC LN. (3568.4')
538+92.1 N-S SECTION LINE
539+88.9 P.I. 01°43'39" LT. (3572.2')
540+00 NATURAL GROUND (3572.2')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊛ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- —x— – DENOTES FENCE LINE
- —E— – DENOTES ELECTRIC LINE
- DENOTES EXISTING PIPELINE BY OTHERS
- DENOTES EXISTING WASH OR DITCH
- DENOTES EXISTING TOE WASH
- DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

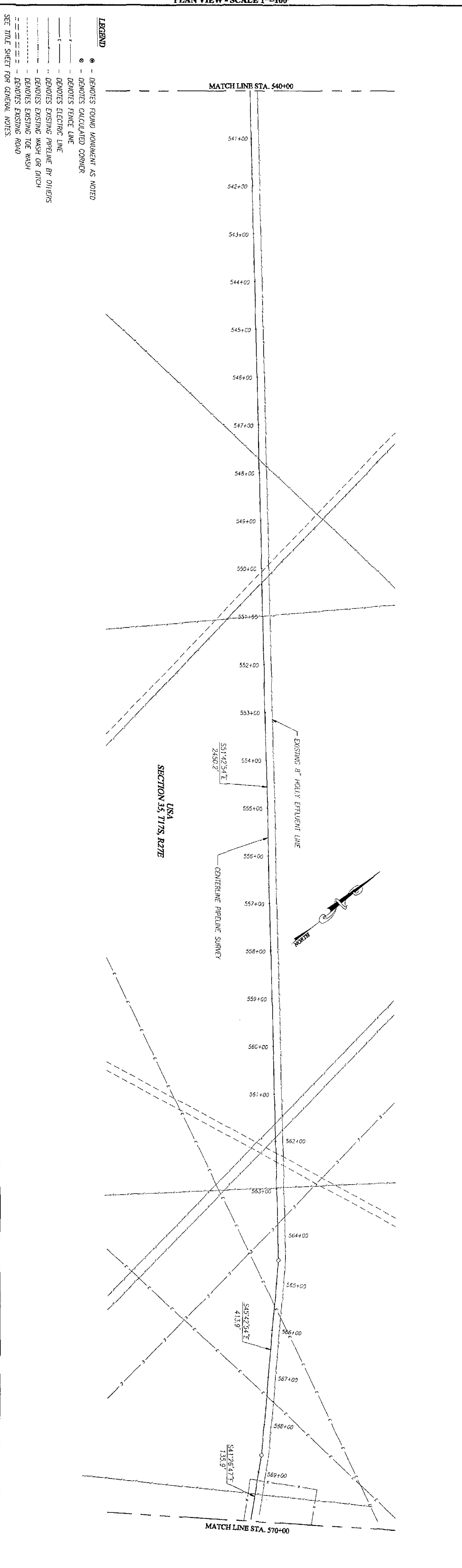
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 510 + 00 TO STA. 540 + 00

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	19 of 24
Survey Date:	10/14/10	CAD Dwg By:	LA
CAD Dwg Date:	12/17/10	File No.:	E-3336

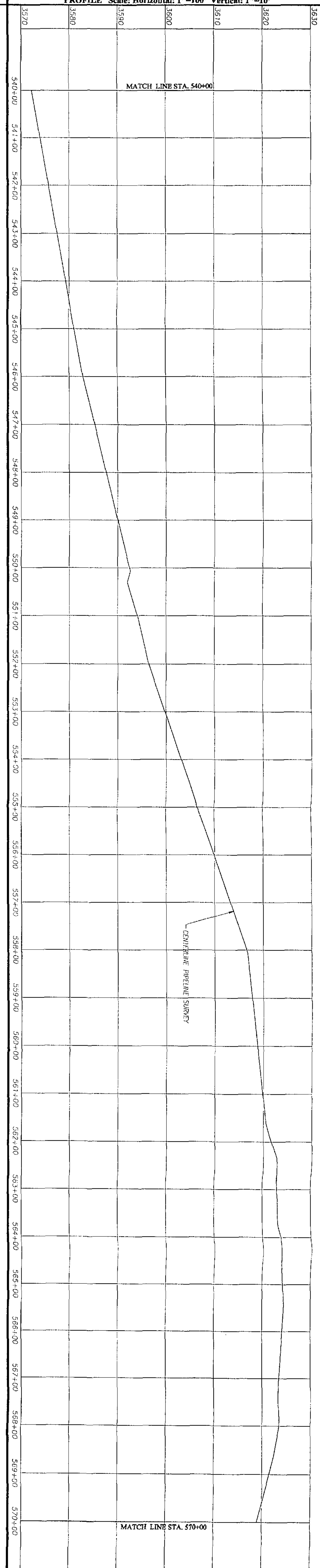
Scale: 1" = 100' 100 0 100 200 FEET

PLAN VIEW - SCALE 1"=100'	STATIONING	PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

540+00 NATURAL GROUND (3572.2')
546+00 NATURAL GROUND (3582.9')
547+71 NAVAJO BPL (3586.9')
550+07 LEASE ROAD (3592.6')
550+30 (2) 3" POLY SURF. P/L (3591.9')
551+00 NM GAS BPL (3594.1')
552+00 NATURAL GROUND (3596.4')
558+80 NATURAL GROUND (3616.7')
561+63 (4) 3" POLY SURF. P/L (3620.5')
561+92 GPM BPL (3621.4')
562+34 LEASE ROAD (3622.8')
562+98 (2) 3" POLY SURF. P/L (3623.0')
563+74 2-W ELEC. LN. (3623.2')
564+00 NATURAL GROUND (3623.9')
564+50.2 P.I. 06°00'00" RT. (3623.9')
565+46 4-W ELEC. LN. (3624.5')
567+41 4-W ELEC. LN. (3623.5')
568+00 NATURAL GROUND (3623.6')
568+54.1 P.I. 04°16'07" RT. (3622.4')
569+46 HOLLY BPL (3618.9')
570+00 NATURAL GROUND (3619.0')



No.	Rev. By:	Chk'd By:	REVISIONS

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& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 540 + 00 TO STA. 570 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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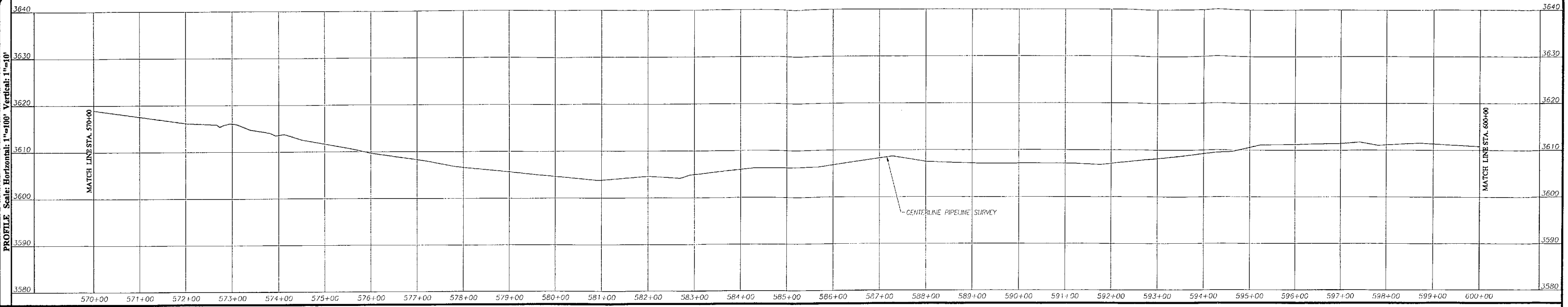
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' — 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

570+00 NATURAL GROUND (3618.0')

572+00 NATURAL GROUND (3616.1')

572+95.0 CO. RD. #225 (3615.1')
573+83.0 CO. RD. #225 (3614.0')

575+57 (2) 2" POLY SURF. P/L (3610.0')

576+00 NATURAL GROUND (3609.7')

576+85 DEVON WATER BPL (3608.5')

577+16 (4) 3" POLY SURF. P/L(3608.1')

577+81 (4) 3" POLY SURF. P/L (3606.8')
579+04 3" POLY SURF. P/L (3606.6')

580+93 DUKE BPL (3603.7')

582+00 NATURAL GROUND (3604.5')

582+09 LEASE ROAD (3604.2')
582+76 3-W ELEC. LN. (3604.4')
582+90 2" POLY SURF. P/L (3604.9')

584+30 2-W ELEC. LN. (3602.3')

584+65 2" STL. SURF. P/L (3606.4')
585+67 LEASE ROAD & 4-W ELEC. LN. (3606.4')

587+29 4-W ELEC. LN. (3608.7')

588+00 NATURAL GROUND (3607.5')

587+97.1 E-W SECTION LINE

589+28 KINDER MORGAN BPL (3607.1')

590+92 CENTURION BPL (3607.2')
591+17.0 P.I. 10°10'02" LT. (3607.2')

591+77 LEASE ROAD (3606.9')

594+00 NATURAL GROUND (3609.2')

594+52 3-W ELEC. LN. (3609.7')

595+23 2" POLY SURF. P/L (3611.1')

595+78.5 P.I. 09°53'54" RT. (3611.2')

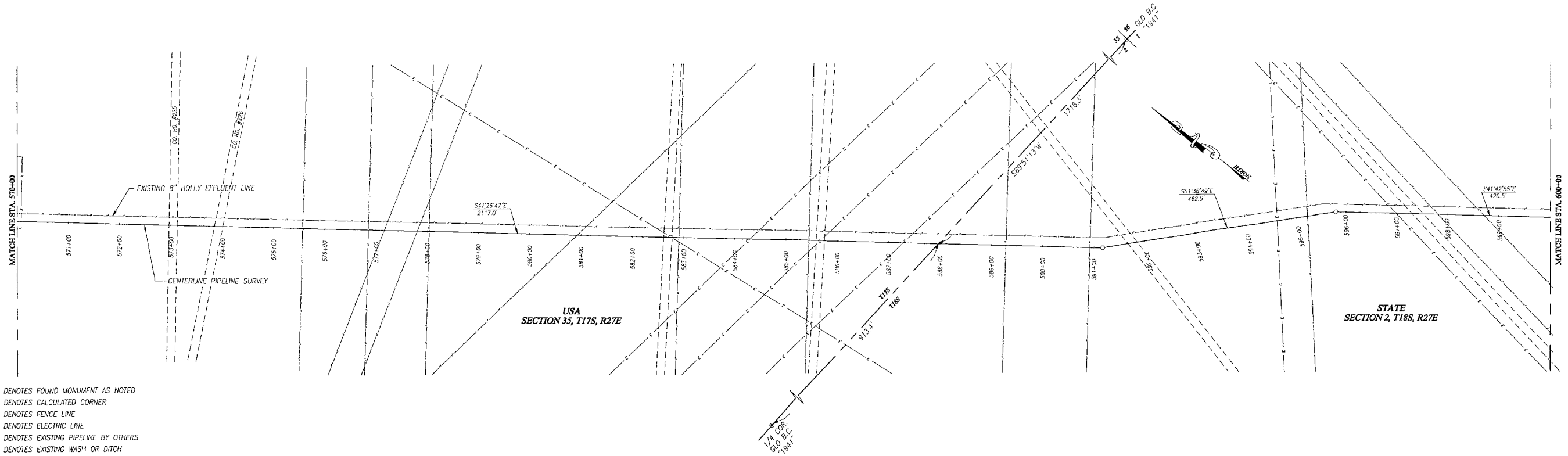
597+00 4-W ELEC. LN. (3611.4')

597+42 LEASE ROAD (3611.7')
597+82 DCP BPL (3611.0')

598+72 DCP BPL (3611.5')

600+00 NATURAL GROUND (3610.8')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ◉ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——c—— – DENOTES ELECTRIC LINE
- ——p—— – DENOTES EXISTING PIPELINE BY OTHERS
- ——·——·—— – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- ≡≡≡≡≡ – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 570 + 00 TO STA. 600 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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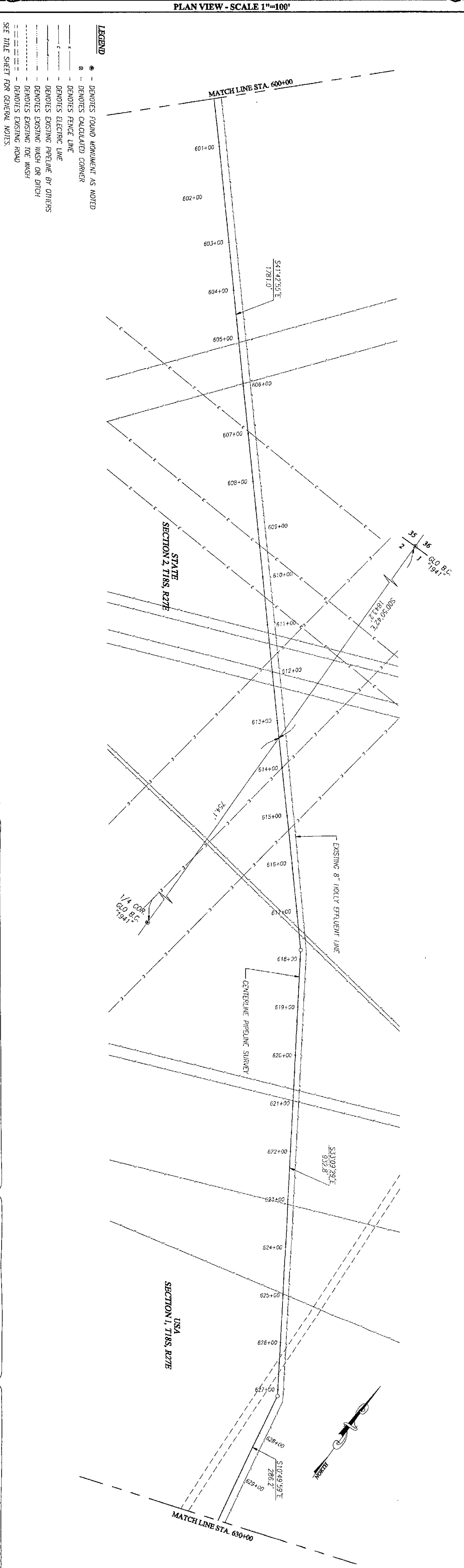
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

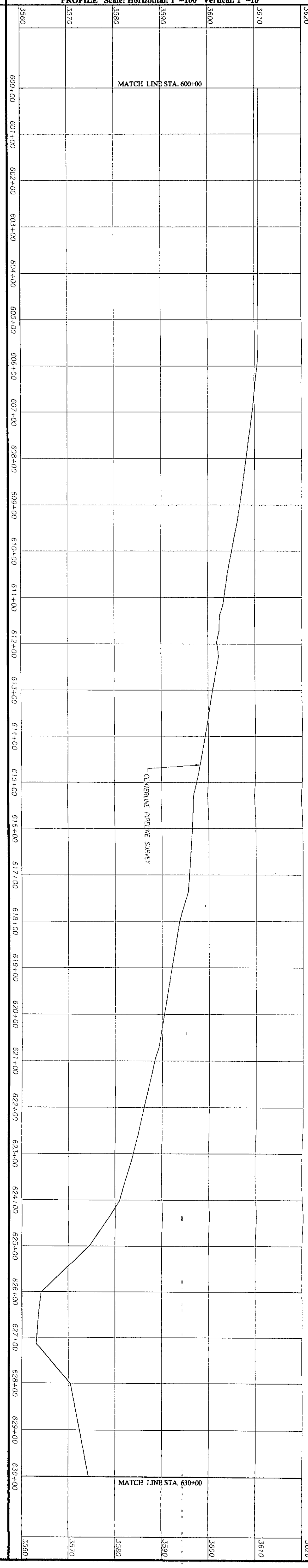
PLAN VIEW - SCALE 1"=100'



STATIONING

600+00 NATURAL GROUND (3610.8')
605+09 CENTURION BPL (3610.5')
605+96 DCP BPL (3610.5')
606+00 NATURAL GROUND (3610.5')
606+95 4-W ELEC. LN. (3609.6')
609+33 DOUBLE POLE ELEC. LN. (3606.3')
610+42 4-W ELEC. LN. (3604.3')
611+17 TRANSWESTERN BPL (3603.2')
611+40 TRANSWESTERN BPL (3602.5')
611+72 4-W ELEC. LN. (3602.4')
611+98 TRANSWESTERN BPL (3601.8')
612+27 TRANSWESTERN BPL (3602.3')
613+36.5 N-S SECTION LINE
614+00 4-W ELEC. LN. (3599.3')
615+31 4-W ELEC. LN. (3597.0')
617+36 CITY OF CARLSBAD BPL (3595.6')
617+47 FRONTIER BPL (3595.3')
617+81.6 P.I. 08°33'26" RT. (3594.2')
618+00 NATURAL GROUND (3593.7')
620+71 BP AMERICAN BPL (3589.3')
620+95 BP AMERICAN BPL (3588.5')
623+10 CENTURION BPL (3583.7')
624+00 NATURAL GROUND (3581.0')
624+97 CENTURION BPL (3574.7')
626+00 NATURAL GROUND (3564.2')
626+49 TRAIL ROAD (3563.5')
627+13.8 P.I. 22°19'30" RT. (3563.1')
628+00 NATURAL GROUND (3570.5')
630+00 NATURAL GROUND (3574.3')

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M. & ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 600 + 00 TO STA. 630 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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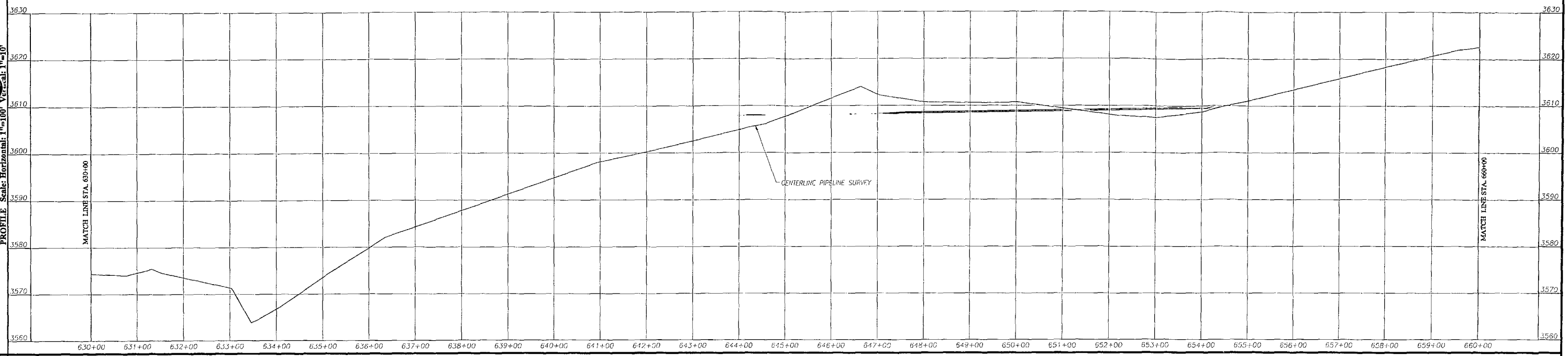
CAD Dwg Date:	12/17/10	File No:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

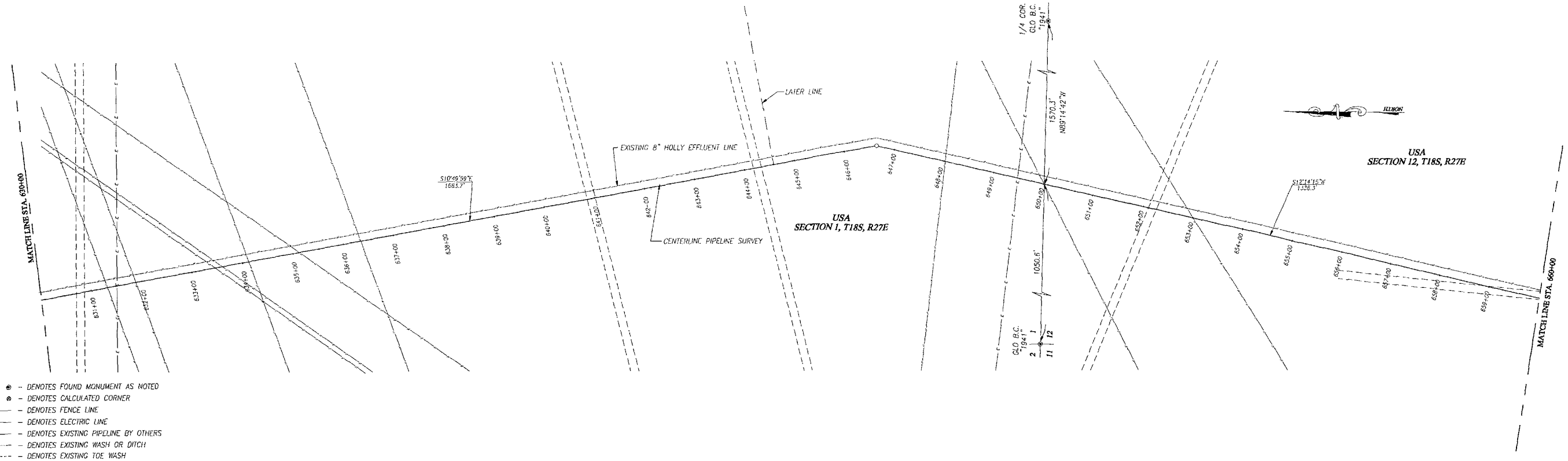
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

630+00	NATURAL GROUND (3574.3')
630+78	LEASE ROAD (3574.9')
631+32	3" STL SURF. P/L (3575.5')
631+51	4-W ELEC LN. (3574.6')
631+88	HOLLY RPL (3572.8')
633+00	NATURAL GROUND (3571.3')
633+46	DCP BPL (3563.9')
633+60	DCP BPL (3564.5')
634+12	CENTURION BPL (3567.5')
635+13	SP AMERICAN BPL (3574.4')
636+00	NATURAL GROUND (3579.9')
636+35	CENTURION BPL (3582.1')
640+94	LEASE ROAD (3598.0')
642+00	NATURAL GROUND (3600.3')
644+25	TRAIL ROAD (3605.5')
644+57.6	LATERAL LINE LEFT (3606.1')
646+63.7	P.I. 23°04'12" RT. (3613.6')
648+02	SP AMERICAN BPL (3610.6')
649+48	4-W ELEC. LN. (3610.6')
650+01	DCP BPL (3610.7')
650+01.8	E-W SECTION LINE
652+19	LEASE ROAD (3607.9')
653+00	8" STL SURF. P/L (3607.5')
654+00	NATURAL GROUND (3608.8')
659+55	LEASE ROAD (3622.0')
660+00	NATURAL GROUND (3622.6')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——e—— – DENOTES ELECTRIC LINE
- ——/——/—— – DENOTES EXISTING PIPELINE BY OTHERS
- ——·——·—— – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- = = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 630 + 00 TO STA. 660 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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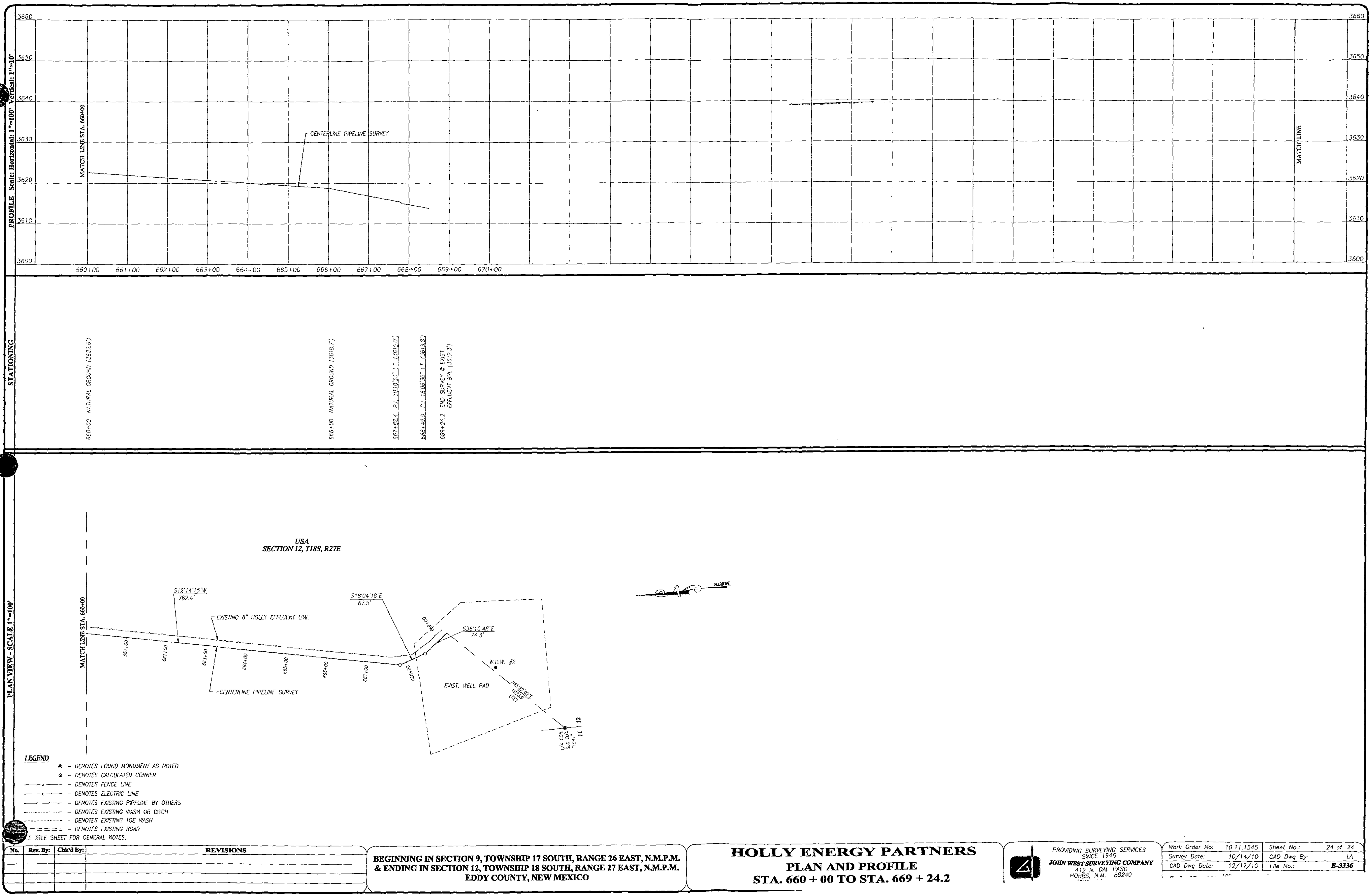
CAD Dwg Date:	12/17/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET


PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'
3660
3650
3640
3630
3620
3610
3600
MATCH LINE STA. 660+00
CENTERLINE PIPELINE SURVEY
MATCH LINE
660+00
661+00
662+00
663+00
664+00
665+00
666+00
667+00
668+00
669+00
670+00
STATIONING
660+00 NATURAL GROUND (3622.6')
666+00 NATURAL GROUND (3618.7')
667+82.4 P.I. 30°18'33" LT. (3615.0')
668+49.9 P.I. 18°06'30" LT. (3613.8')
669+24.2 END SURVEY @ EXIST. EFFLUENT BPL (3612.3')
PLAN VIEW - SCALE 1"=100'
USA
SECTION 12, T18S, R27E
MATCH LINE STA. 660+00
S12°14'15"W
782.4'
EXISTING 8" HOLLY EFFLUENT LINE
CENTERLINE PIPELINE SURVEY
S18°04'18"E
67.5'
S36°10'48"E
74.3'
W.D.W. #2
EXIST. WELL PAD
1/4 COR.
GLO B.C.
"1941"
11
12
LEGEND
– DENOTES FOUND MONUMENT AS NOTED
– DENOTES CALCULATED CORNER
– DENOTES FENCE LINE
– DENOTES ELECTRIC LINE
– DENOTES EXISTING PIPELINE BY OTHERS
– DENOTES EXISTING WASH OR DITCH
– DENOTES EXISTING TOE WASH
– DENOTES EXISTING ROAD
SEE TITLE SHEET FOR GENERAL NOTES.
No.
Rev. By:
Chk'd By:
REVISIONS
BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 660 + 00 TO STA. 669 + 24.2
PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
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CAD Dwg Date: 12/17/10
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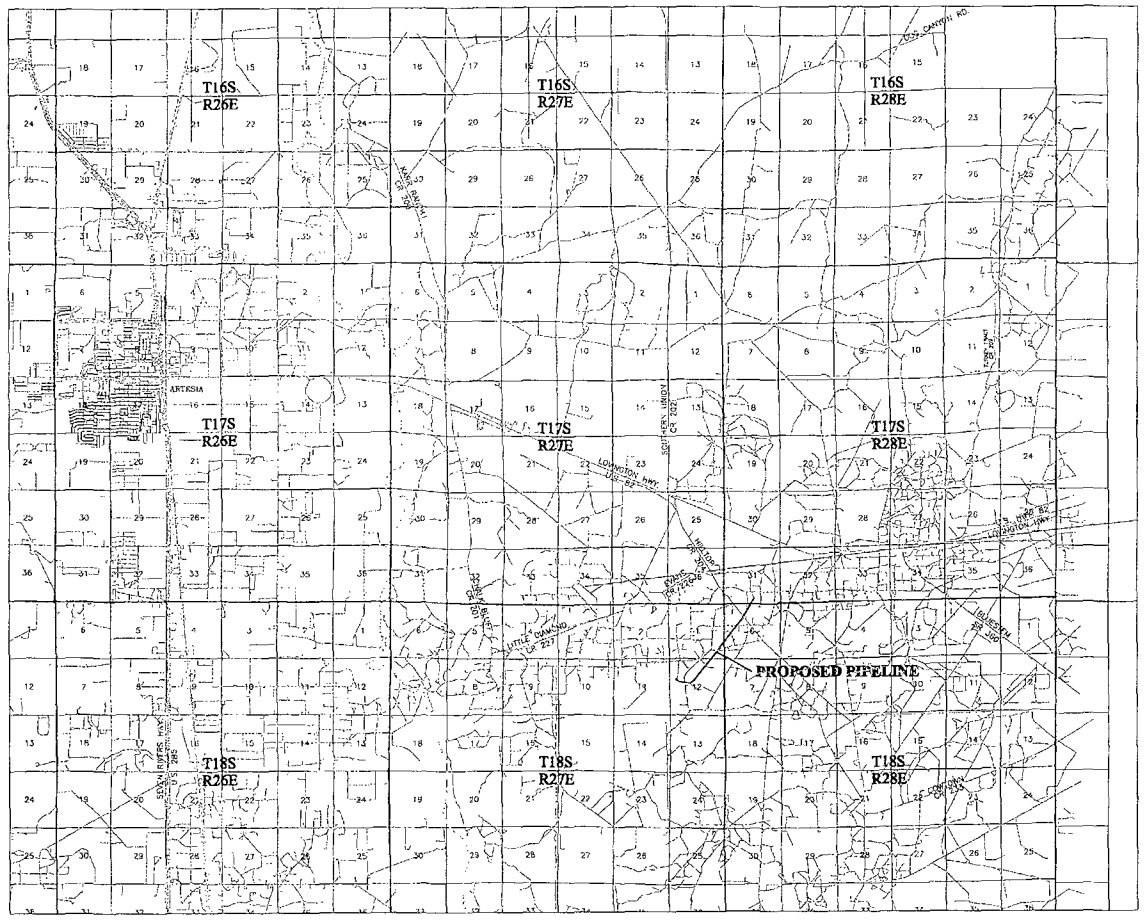
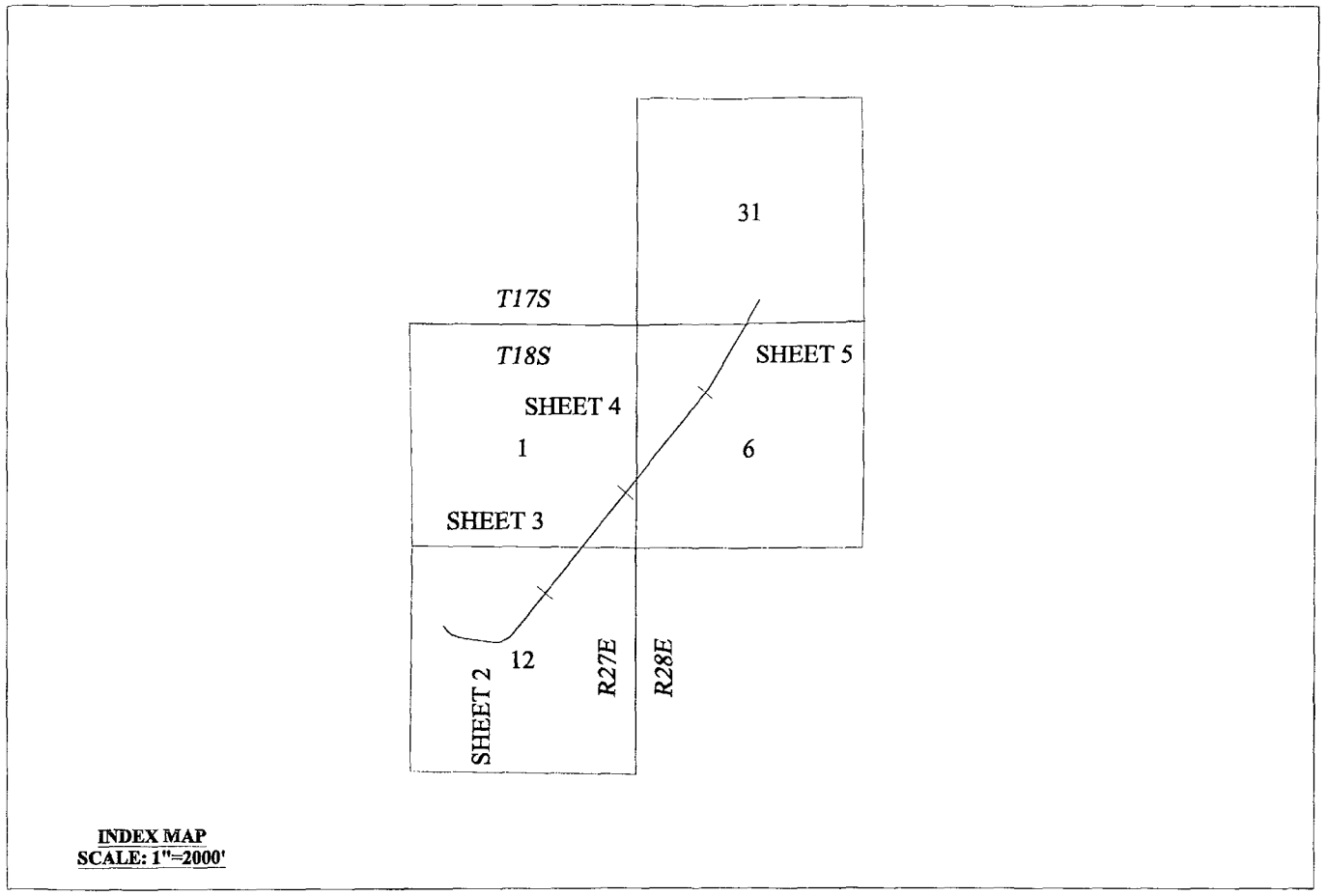


VICINITY MAP
NOT TO SCALE



INDEX MAP
SCALE: 1"=2000'

LEGEND AND GENERAL NOTES:

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——E—— – DENOTES ELECTRIC LINE
- ——— – DENOTES EXISTING PIPELINE BY OTHERS
- ——·——·—— – DENOTES EXISTING WASH OR DITCH
- = = = = = – DENOTES EXISTING ROAD

GENERAL NOTES:

1) BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

2) REFER TO INDIVIDUAL PLATS SUBMITTED BY JOHN WEST SURVEYING COMPANY.

3) UTILITY LOCATIONS SHOWN ARE FROM OBSERVED SURFACE EVIDENCE. ACTUAL LOCATIONS SHOULD BE VERIFIED.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
& ENDING IN SECTION 31, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 00 + 00 TO STA. 115 + 15.7

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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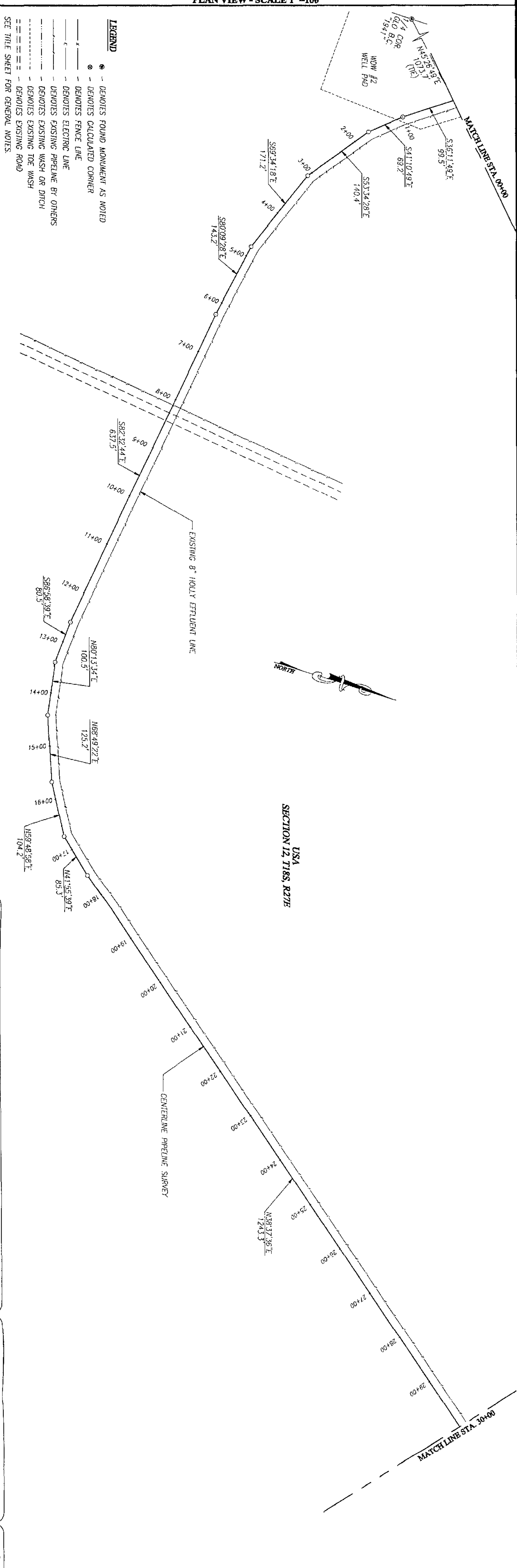
CAD Dwg Date:	12/22/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

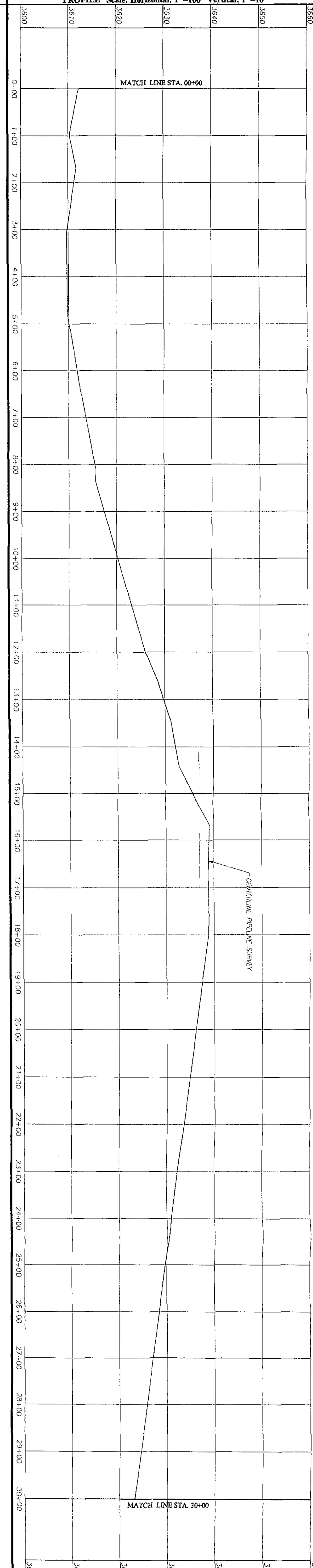
PLAN VIEW - SCALE 1"=100'



STATIONING

0+00 BEGIN SURVEY @ 8" STL. LINE (3612.2')
0+99.5 P.I. 04°59'00" LT. (3610.3')
1+68.7 P.I. 12°23'39" LT. (3611.7')
3+09.1 P.I. 15°59'50" LT. (3609.6')
4+80.3 P.I. 10°35'10" LT. (3609.8')
6+23.5 P.I. 02°23'16" LT. (3612.2')
8+11 DCP BPL (3615.7')
8+35 LEASE ROAD (3615.6')
12+61.0 P.I. 04°25'55" LT. (3628.5')
13+41.5 P.I. 12°47'47" LT. (3631.1')
14+42.0 P.I. 11°24'12" LT. (3632.8')
12+00 NATURAL GROUND (3625.9')
15+67.2 P.I. 09°00'24" LT. (3636.1')
16+71.4 P.I. 17°53'19" LT. (3638.8')
17+56.7 P.I. 03°18'03" LT. (3639.0')
18+00 NATURAL GROUND (3638.8')
24+00 NATURAL GROUND (3630.9')
30+00 NATURAL GROUND (3623.2')

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



REVISIONS

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HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 00 + 00 TO STA. 30 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

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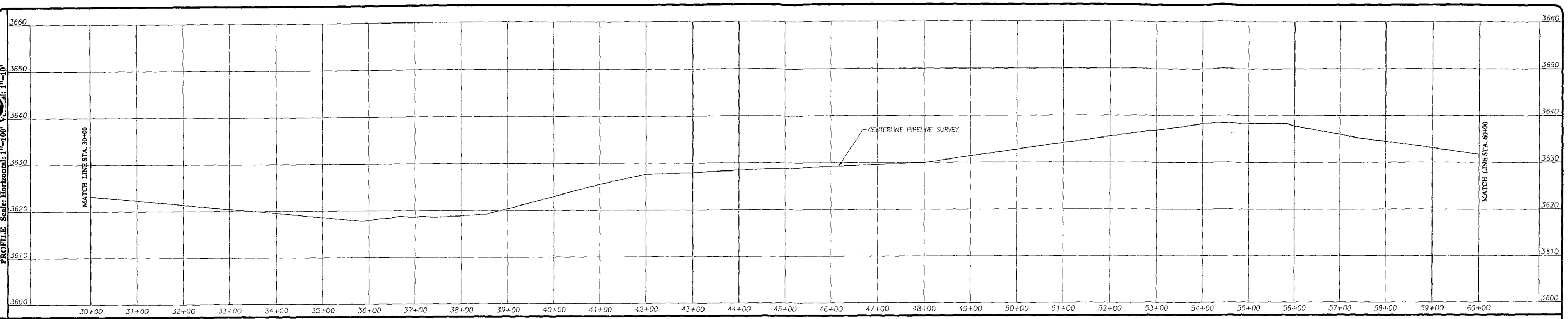
CAD Dwg Date:	12/22/10	File No.:	E-3336

Scale: 1" = 100'

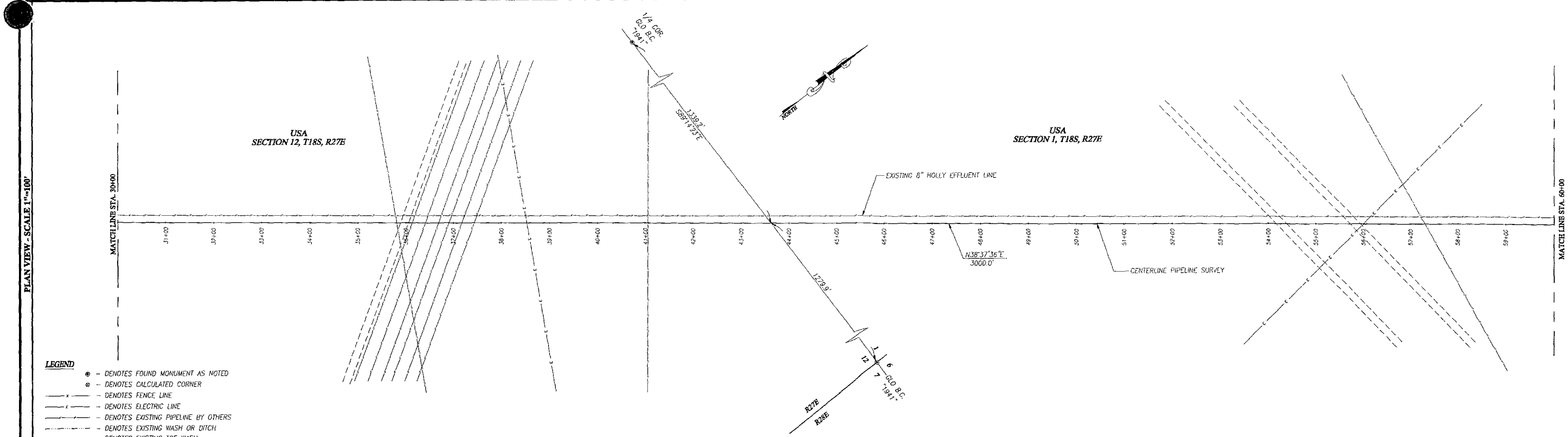
PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

30+00 NATURAL GROUND (3623.2')
35+01 BP AMERICAN BPL (3617.9')
35+97 LEASE ROAD (3617.9')
36+00 NATURAL GROUND (3617.9')
36+13 NAVAJO BPL (3618.2')
36+41 HOLLY BPL (3618.4')
36+68 NAVAJO BPL (3618.6')
36+91 NAVAJO BPL (3618.6')
37+17 NAVAJO BRL (3618.8')
37+43 (2) 3" POLY SUBR. P/L (3618.6')
36+53 4-W ELEC. LN. (3618.2')
42+00 NATURAL GROUND (3627.6')
41+05 MEYBOURNE BPL (3625.7')
43+62.5 E-W SECTION LN.
49+00 NATURAL GROUND (3630.6')
54+00 NATURAL GROUND (3638.3')
54+28 LEASE ROAD (3638.4')
55+83 LEASE ROAD (3638.2')
56+00 4-W ELEC. LN. (3637.8')
57+30 DCP BPL (3635.4')
60+00 NATURAL GROUND (3631.7')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
- ⊗ – DENOTES CALCULATED CORNER
- ——x—— – DENOTES FENCE LINE
- ——ℓ—— – DENOTES ELECTRIC LINE
- ——//—— – DENOTES EXISTING PIPELINE BY OTHERS
- ——— – DENOTES EXISTING WASH OR DITCH
- - - - - - – DENOTES EXISTING TOE WASH
- = = = = = – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

No.	Rev. By:	Chk'd By:	REVISIONS

BEGINNING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. & ENDING IN SECTION 31, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

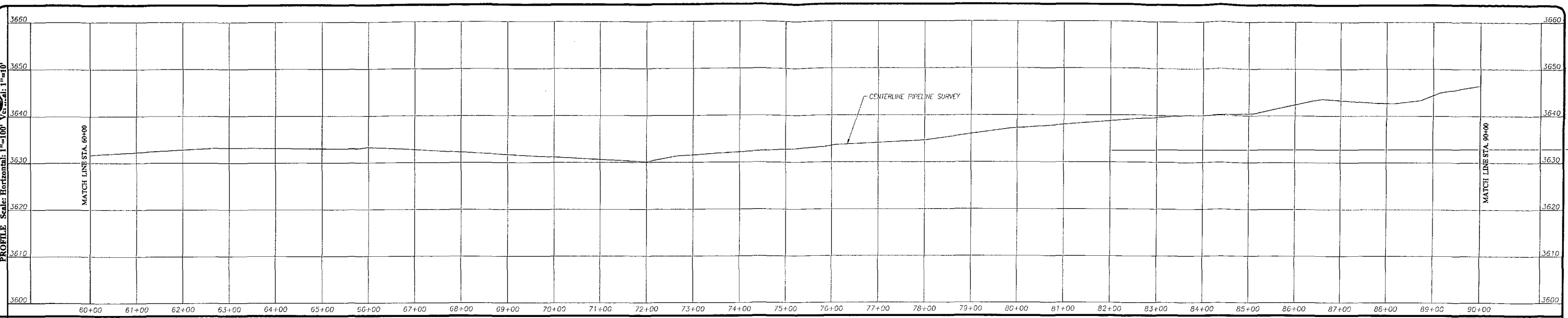
HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 30 + 00 TO STA. 60 + 00

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No.:	3 of 5
Survey Date:	10/13/10	CAD Dwg By:	LA
CAD Dwg Date:	12/22/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



STATIONING

60+00 NATURAL GROUND (3631.7')

62+79 4" POLY SURF. P/L (3633.2')

64+12.5 N-S SECTION LINE

65+39 BPL (3632.9')

65+81 CENTURION BPL (3633.1')
NATURAL GROUND (3633.3')
66+00 CENTURION BPL (3633.1')
66+24 CENTURION BPL (3633.2')

72+00 NATURAL GROUND (3630.1')

72+66 4"-W ELEC. LN. (3631.4')

75+85 UPC AMERICAN BPL (3633.3')
75+10 LEASE ROAD (3633.7')

78+00 NATURAL GROUND (3634.6')

79+92 (4) SURF. P/L'S
(3) SURF. P/L'S (3637.2')
80+20 BP AMERICA BPL (3637.5')
80+24 4" STL SURF. P/L (3637.4')

83+64 LEASE ROAD (3640.1')

84+00 NATURAL GROUND (3640.0')

85+13 FRONTIER BPL (3640.5')

86+51 2" STL SURF. P/L (3643.5')
86+59 CENTURION BPL (3643.6')

86+78 3" POLY SURF. P/L (3642.8')

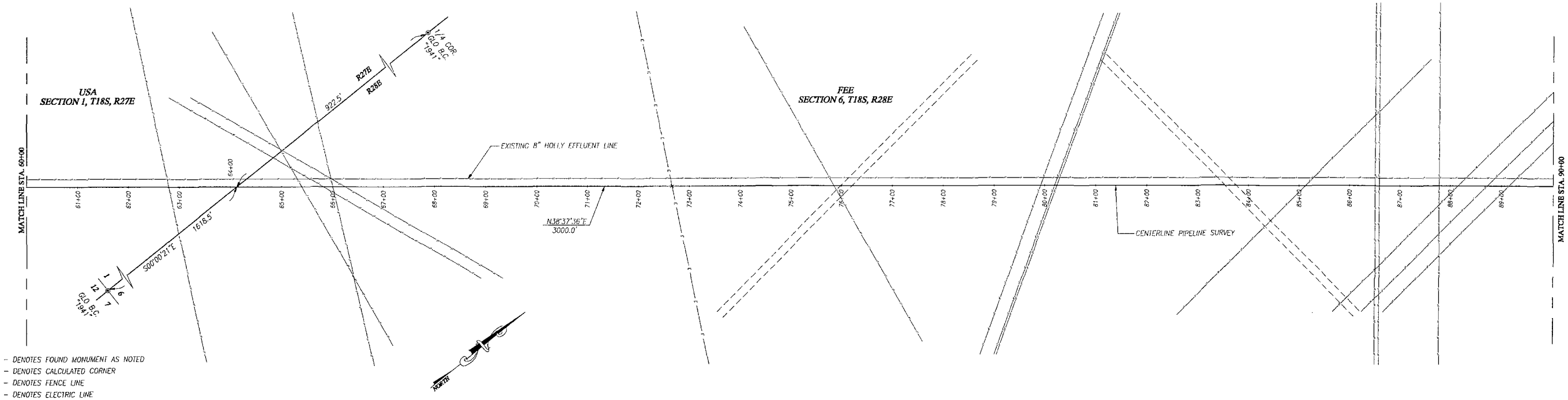
88+15 CHEVRON BPL (3642.6')

88+72 TRANSWESTERN BPL (3643.3')

89+15 FRONTIER BPL (3645.0')

90+00 NATURAL GROUND (3646.3')

PLAN VIEW - SCALE 1"=100'



LEGEND

- ⊕ – DENOTES FOUND MONUMENT AS NOTED
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- ——x—— – DENOTES FENCE LINE
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- ——·——·—— – DENOTES EXISTING WASH OR DITCH
- ---------- – DENOTES EXISTING TOE WASH
- ═══════ – DENOTES EXISTING ROAD

SEE TITLE SHEET FOR GENERAL NOTES.

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EDDY COUNTY, NEW MEXICO

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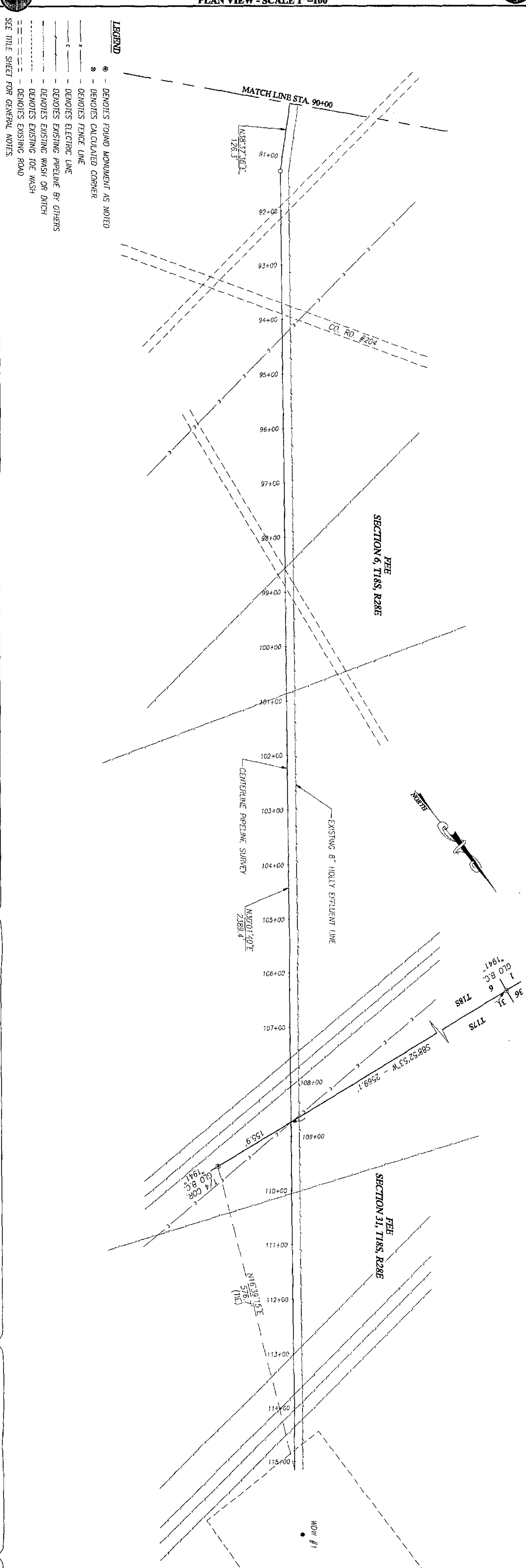
Work Order No:	10.11.1545	Sheet No.:	4 of 5
Survey Date:	10/13/10	CAD Dwg By:	LA
CAD Dwg Date:	12/22/10	File No.:	E-3336

Scale: 1" = 100' 100 0 100 200 FEET

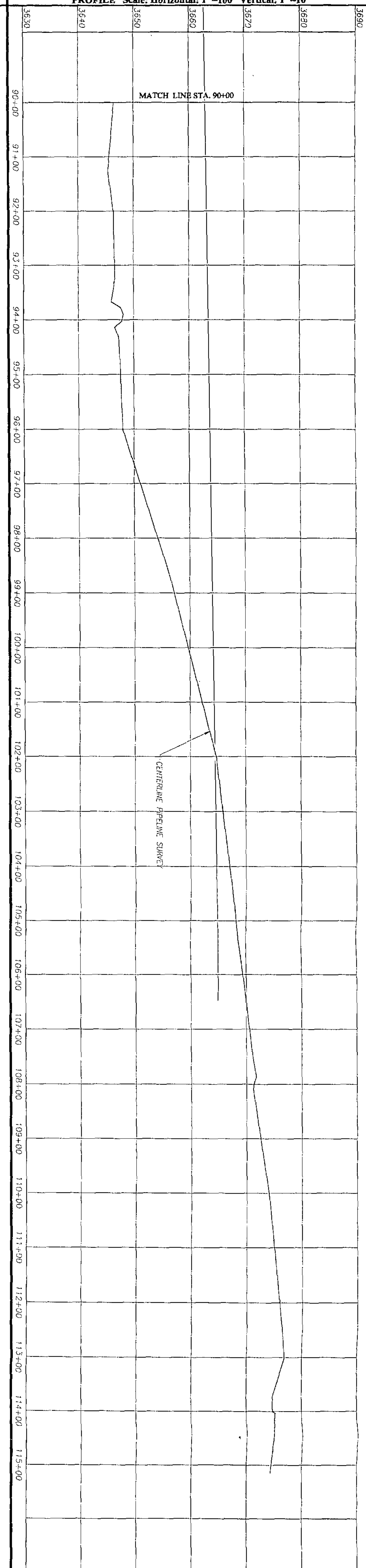
PLAN VIEW - SCALE 1"=100'



STATIONING

90+00 NATURAL GROUND (3646.5')
91+26.3 P.I. 08°35'56" LT. (3645.4')
92+02 LEASE ROAD (3645.5')
93+25 NATURAL GROUND (3645.7')
93+61 NATURAL GROUND (3646.1')
93+78 EDGE ROAD (3647.7')
93+90 CO. RD. #204 (3648.1')
94+03 EDGE ROAD (3647.9')
94+32 3-W ELEC. LN. (3647.3')
94+75 NATURAL GROUND (3647.5')
96+00 NATURAL GROUND (3647.9')
98+53 CITY OF CARLSBAD WATER LN. (3655.9')
98+74 TRAIL ROAD INTERSECTION (3656.5')
100+86 FRANKLIN BPL (3661.8')
102+00 NATURAL GROUND (3664.7')
107+57 FRONTIER BPL (3671.2')
107+85 FRONTIER BPL (3671.8')
108+09 FRONTIER BPL (3671.2')
108+00 NATURAL GROUND (3670.3')
108+74.1 E-W SECTION LINE
108+75 4-W ELEC. LN. (3672.3')
110+06 3" POLY SURF. P/L (3674.1')
113+02 TRANSWESTERN BPL (3676.9')
113+75 TRANSWESTERN BPL (3674.7')
114+04 FRONTIER BPL (3675.2')
114+36 CHEVRON BPL (3675.0')
104+00 NATURAL GROUND (3674.7')
115+15.7 END SURVEY @ WDW #1 WELL PAD (3679.8')

PROFILE Scale: Horizontal: 1"=100' Vertical: 1"=10'



No.	Rev. By:	Ckk'd By:

REVISIONS

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HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 90 + 00 TO STA. 115 + 15.7

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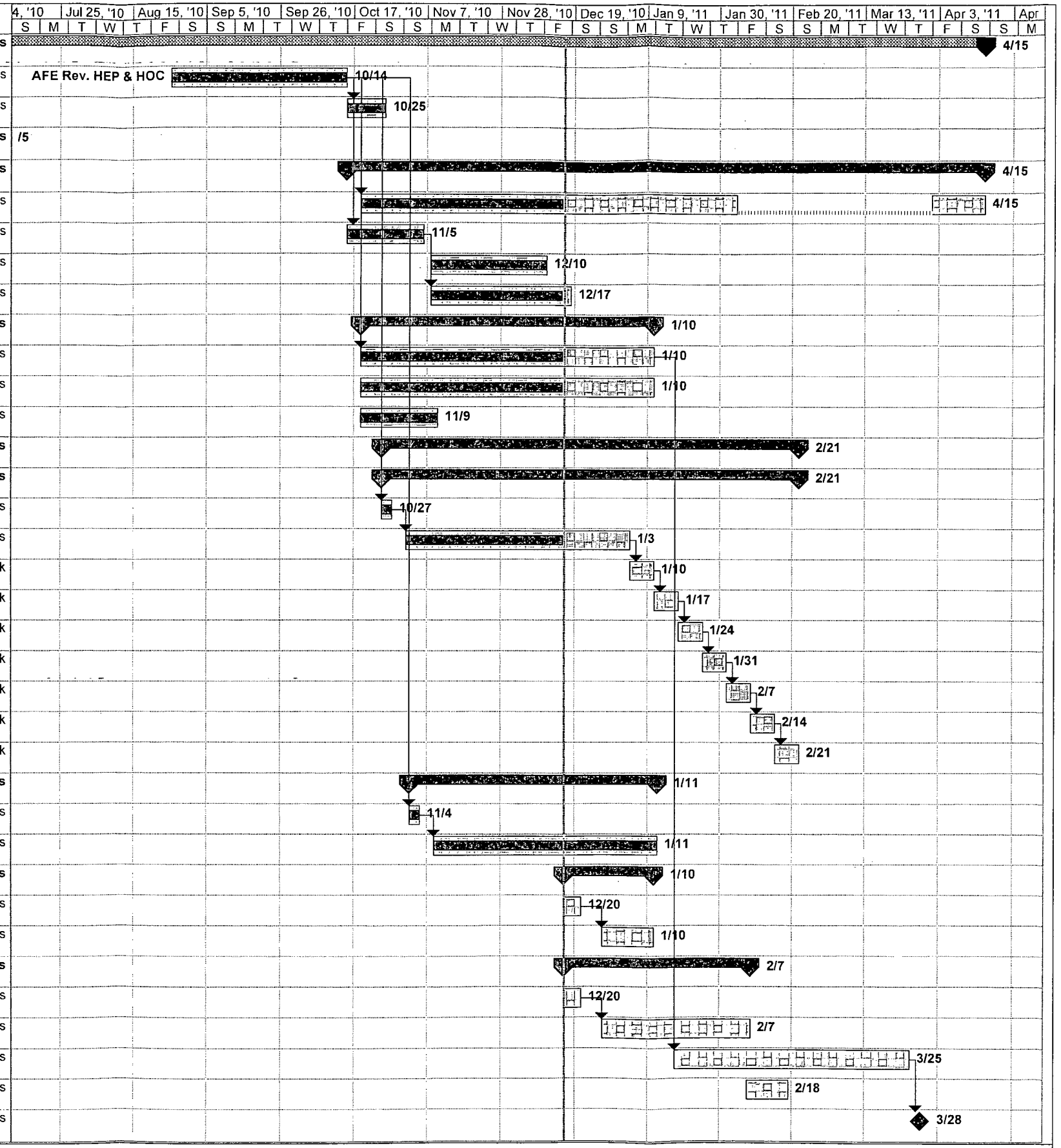
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	10.11.1545	Sheet No:	5 of 5
Survey Date:	10/13/10	CAD Dwg By:	LA
CAD Dwg Date:	12/22/10	File No:	E-3336
Scale: 1" = 100'	100 0 100 200 FEET		

ID	Task Name	Start	Finish	Duration
1	**Navajo Refinery Water Effluent Line**	**Tue 6/1/10**	**Fri 4/15/11**	**222 days**
2	**AFE Rev. HEP & HOC**	Thu 8/26/10	Thu 10/14/10	7 wks
3	**AFE loaded into SAP and DataStream**	Fri 10/15/10	Mon 10/25/10	7 days
4	**River Bore Project (8")**	**Tue 6/1/10**	**Mon 7/5/10**	**25 days**
23	**Pipeline Project**	**Fri 10/15/10**	**Fri 4/15/11**	**125 days**
24	**Engineering**	Tue 10/19/10	Fri 4/15/11	16.6 wks
25	**Survey ROW**	Fri 10/15/10	Fri 11/5/10	3.2 wks
26	**Survey ROW Plats**	Mon 11/8/10	Fri 12/10/10	4.4 wks
27	**Survey ROW Aligment Sheet Dwgs**	Mon 11/8/10	Fri 12/17/10	5.4 wks
28	**Pipeline ROW**	**Tue 10/19/10**	**Mon 1/10/11**	**54 days**
29	Purchase ROW - BLM	Tue 10/19/10	Mon 1/10/11	2.7 mons
30	Purchase ROW - Private	Tue 10/19/10	Mon 1/10/11	2.7 mons
31	Purchase ROW - SLO	Tue 10/19/10	Tue 11/9/10	0.8 mons
32	**Materials Procurement/Delivery**	**Mon 10/25/10**	**Mon 2/21/11**	**80 days**
33	**FG Pipe & Fittings Procurement/Delivery**	**Mon 10/25/10**	**Mon 2/21/11**	**80 days**
34	Pipe/fittings - Procure (15 miles Fiberglass)	Mon 10/25/10	Wed 10/27/10	3 days
35	Pipe/fittings (half of material)- Delivery#1 (6.06miles)	Mon 11/1/10	Mon 1/3/11	8 wks
36	Pipe/fittings (half of material)- Delivery#2 (1.21miles)	Tue 1/4/11	Mon 1/10/11	1 wk
37	Pipe/fittings (half of material)- Delivery#3 (1.21miles)	Tue 1/11/11	Mon 1/17/11	1 wk
38	Pipe/fittings (half of material)- Delivery#4 (1.21miles)	Tue 1/18/11	Mon 1/24/11	1 wk
39	Pipe/fittings (half of material)- Delivery#5 (1.21miles)	Tue 1/25/11	Mon 1/31/11	1 wk
40	Pipe/fittings (half of material)- Delivery#6 (1.21miles)	Tue 2/1/11	Mon 2/7/11	1 wk
41	Pipe/fittings (half of material)- Delivery#7 (1.21miles)	Tue 2/8/11	Mon 2/14/11	1 wk
42	Pipe/fittings (half of material)- Delivery#8 (remainder)	Tue 2/15/11	Mon 2/21/11	1 wk
43	**Pipeline Valves Procurement/Delivery**	**Tue 11/2/10**	**Tue 1/11/11**	**45 days**
44	Valves - Procure	Tue 11/2/10	Thu 11/4/10	3 days
45	Valves- Delivery	Tue 11/9/10	Tue 1/11/11	8 wks
46	**CS Fittings Procurement/Delivery**	**Thu 12/16/10**	**Mon 1/10/11**	**15 days**
47	Fittings - Procure	Thu 12/16/10	Mon 12/20/10	3 days
48	Fittings- Delivery	Mon 12/27/10	Mon 1/10/11	2 wks
49	**Valve Boxes Procurement/Delivery**	**Thu 12/16/10**	**Mon 2/7/11**	**35 days**
50	Valve Boxes - Procure	Thu 12/16/10	Mon 12/20/10	3 days
51	Valve Boxes- Delivery	Mon 12/27/10	Mon 2/7/11	6 wks
52	**Pipeline Construction**	Mon 1/17/11	Fri 3/25/11	10 wks
53	**Pecos River Crossing (12" Bore-Casing)**	Mon 2/7/11	Fri 2/18/11	2 wks
54	**NEW PIPELINE ACTIVATION**	Mon 3/28/11	Mon 3/28/11	0 days



HOLLY ENERGY PARTNERS

8" WATER EFFLUENT PIPELINE PROJECT NRC

Project Summary for Oil Conservation Division, Environmental Bureau

Prepared by:
Holly Energy Partners,
Technical Services Dept

HOLLY ENERGY PARTNERS
Artesia, NM

Revision 00, December 27, 2010

Clem Vasquez, EIT Project Engineer	George L. Sanchez General Manager, Tech Services
Prepared By	Approved By

HOLLY ENERGY PARTNERS

PROJECT SUMMARY

PROJECT: 8" Water Effluent Pipeline

PROJECT LOCATION: Artesia, NM

The 8" Water Effluent Pipeline project will consist of designing and constructing approximately 15miles of new 8" Fiberglass pipeline. This new pipeline will parallel the existing 8" carbon steel water effluent pipeline (starting inside the Navajo Refinery and heading East to three injection wells). The current 8" carbon steel water effluent line is in service and operating but is highly corroded(due to internal corrosion), thus the need to design/construct a new pipeline parallel to it.

The new pipeline design needs to take into consideration the tie ins to the well injection locations and accommodate minimal down time on the existing carbon steel pipeline when activating the new line and deactivating the old (carbon steel) pipeline. The new fiberglass pipeline will be below grade and all below grade to above grade transitions will be accomplished with internal and external coated carbon steel. These carbon steel sections will also be protected with anode banks, for external corrosion protection. The scope of work will stop at the inlet to the filter isolation valves at each injection well sites. The isolation/block valves (qty 6) will be below grade in a concrete valve box (with the exception to the west river valve setting). The entire construction will consist of approximately 10weeks (see attached schedule).

The 8" Fiberglass is a NOV, STAR, Anhydride line pipe product with a design pressure rating 1500psig at 150deg F(see attached spec sheet). The fluid in this design is effluent water which comes from the Navajo Refinery (see attached water samples). The pipeline max flow rate for design is 750gpm (~26,000bbl/day) at 130deg F(max) and pressures shall stay within the pressure rating of ANSI 600#.

We will use the fiberglass line pipe max temperature rating (150 deg F) and the valves/flanges pressure rating (1480psig) as the constraints for design parameters.

The pipeline will be designed so that it can be pigged (with a foam pig) from the start of the pipeline (inside the refinery), the to last injection well (Mewbourne – Inj. well #1). The two other laterals are short sections with isolation valves that won't be pigged (Chukka –Inj. Well #2; Gains – Inj. Well #3).

This pipeline will have several locations where steel casing will be encasing the fiberglass pipeline to protect it from third party damage as additional precaution. These locations include but are not limited to county road crossings, state highway crossings, river crossing, and major pipeline corridor crossings.

Thus overall the new pipeline design will be much more resilient to internal corrosion and the addition of more isolation valves will make it easier to work on sections of the line or injection well if a problem does prevail.

1. Specifications and Standards for Design
    a. US DOT CFR 49 Part 195 -Hazardous Liquids
    b. American Society of Mechanical Engineers B31.4 (ASME)
    c. American Petroleum Institute 6D(API)
    d. American Petroleum Institute 1104(API)
    e. American Petroleum Institute Recommended Practice 1102(API RP)
    f. American Society for Testing and Materials (ASTM)
    g. Occupational Safety and Health Administration (OSHA)
    h. American Concrete Institute (ACI)
    i. National Association of Corrosion Engineers (NACE)
    j. National Electric Code (NEC)

Fiber Glass Systems, L.P
P.O. Box 37389
2425 S.W. 36th
San Antonio, Texas 78237 USA
210-434-5043
Fax: 210-434-7543
www.starfiberglass.com

Fiber Glass Systems

August 12, 2010

Holly Energy Partners, L.P.

Re. **Confirmation of Fiberglass Pipe Compatibility**

To Whom It May Concern:

We have been asked to provide a letter to Holly Energy confirming that our proposed fiberglass pipe is compatible with the chemical and operational parameters given for the 8" Water Effluent Pipeline Project. Please see the attached email on the subject.

Chemical Compatibility

We have reviewed the water constituents in the water analyses provided (attached) and do not find any constituent that would cause chemical incompatibility with our anhydride cured epoxy resin as long as the operations temperature never reaches above 150° F.

Operational Compatibility

The following operational parameters have been given in the attached literature:

- Service = Effluent water
- Maximum Operating Temperature = 130° F
- Flow Rate = 26000 bbl/day

From this, we can calculate the following:

- Flow Velocity = 5.5 ft/sec
- Friction Head Loss (ΔP) = 0.499 psi/100 ft

These parameters fall well within the recommended operating parameters for the proposed 8" pipe.

Please advise if there are any other subjects that need to be addressed for this project.

Sincerely,

Robert Hitchcock
Sr. Applications Engineer

Hitchcock, Robert

From: Graham, Dennis
Sent: Thursday, August 12, 2010 10:12 AM
To: Hitchcock, Robert
Subject: FW: 8" Water Effluent Pipeline Project
Attachments: Influent Water Quality.pdf

Importance: High

Robert,
I just received this from Clem at Holly. The way I read this we might need a more formal letter. II have already sent you response to them. Pleas e-mail Clem and see if that is satisfactory
Dennis.

From: Vasquez, Clemente [mailto:Clemente.Vasquez@hollyenergy.com]
Sent: Thursday, August 12, 2010 10:06 AM
To: Graham, Dennis
Cc: Sanchez, George; Jones, Kent
Subject: 8" Water Effluent Pipeline Project
Importance: High

Dennis:

Holly Corporation has made the decision to pursue with the design of a new fiberglass pipeline parallel to the current line.

Please start working up the latest pricing and lead time and see if you can reserve us a spot in the fabrication schedule for our order.

I expect 2 weeks from now we can provide you with a Purchase order.

Also we need a formal letter from NOV stating that they have reviewed our water samples and the pipe and resins and sealers that you all are quoting for this project meet all the design specifications required (temperature, pressure, flow rates, and etc).

Note the attached PDF has 3 effluent water samples, an average, and a City Water Sample for comparison (PH of water ranges from 7-9)
Max Temperature of water in pipeline = 130 deg F
Fluid = Effluent Water
Flow Rates = 750gpm or approx 26,000bbl/day

Clem Vasquez, EIT
Project Engineer
Technical Services
Holly Energy Partners, L.P.
Office Phone: 575-748-8973
Cell Phone: 214-478-4093
Fax: 214-237-3043
Email: clem.vasquez@hollyenergy.com

From: Graham, Dennis [mailto:Dennis.Graham@nov.com]
Sent: Thursday, July 29, 2010 7:52 AM
To: Sanchez, George; Jones, Kent; Vasquez, Clemente
Subject:

George,
Could one of you let me know what Holly ending up doing on the 8" water line? I have to do a report for my boss and this information sure would help me complete it with the correct information.
Thanks,
Dennis

Navajo Refinery
Influent Water Quality Data

Analyte	Units	Sample				
		API Sepator Inlet 6/23/2008 0930	API Sepator Inlet 6/23/2008 1440	API Sepator Inlet 6/24/2008 0855	API Separator Inlet Average	City Water 7/1/2008 1520
Total Hardness	mg/l as $CaCO_3$	644	770	601	672	640
Calcium	mg/l	144	233	157	178	176
Magnesium	mg/l	46.6	45.8	50.8	47.7	48.6
Iron	mg/l	0.503	6.17	1.14	3	0.208
Sodium	mg/l	248	269	273	263	21.8
Chloride	mg/l	327	374	375	359	37.5
Sulfate	mg/l	534	511	563	536	637
Silica	mg/l as SiO_2	15	19	18	17	20
Conductivity	umhos	2260	2610	2590	2487	1530
Alkalinity, Bicarb	mg/l as $CaCO_3$	157	261	195	204	
Alkalinity, Carb	mg/l as $CaCO_3$	105	196	188	163	
Alkalinity, Total	mg/l as $CaCO_3$	262	457	383	367	

Navajo Refinery
Recycled Water Quality

Analyte	Units	Feed Water from WWTP	Option 2 UF/RO		Option 3 Nanofiltration		Option 4 Cold Lime Softening
			Permeate	Concentrate	Permeate	Concentrate	Permeate
Design Flow Rate	gpm	500	360	140	360	140	500
Total Hardness	mg/l as $CaCO_3$	672					
Calcium	mg/l	178	30		30	556	10
Magnesium	mg/l	47.7	8.4		2.5	164	14.8
Iron	mg/l	3					
Sodium	mg/l	263	52		226	405	263
Chloride	mg/l	359	75		312	527	359
Sulfate	mg/l	536	98		28	1841	536
Silica	mg/l as SiO_2	17.3	3.3		16.5	19.4	15
Conductivity	umhos	2487					
TDS	mg/l	1561	312		736	3810	1200
CO3	mg/l	69			43	120	
HCO3	mg/l	44			33	87	

ALS Environmental

25-Aug-2010

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: **1008405**

Dear Aaron,

ALS Environmental received 1 sample on 12-Aug-2010 08:16 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 37.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

JayLynn F Thibault

Electronically approved by: Glenda H. Ramos

JayLynn F Thibault
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac

Certificate No: T104704231-09A-TX

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: **1008405**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1008405-01	Inj Well	Water		8/11/2010 12:40	8/12/2010 08:16	☐

ALS Environmental *Date: 25-Aug-10*

Client:	Navajo Refining Company
Project:	Injection Well Quarterly
Work Order:	1008405

Case Narrative

Batch 45294 Metals (sample 1008401-15) MS/MSD unrelated sample.

Batch R96065 Volatiles (sample 1008613-30) MS/MSD unrelated sample.

Batch R965869 Chloride (sample 1008508-01) MS unrelated sample.

ALS Environmental

Date: *25-Aug-10*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1008405
Sample ID: Inj Well
Lab ID: 1008405-01
Collection Date: 8/11/2010 12:40 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY			**SW7470**		Prep Date: **8/19/2010**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	8/19/2010 03:13 PM
METALS			**SW6020**		Prep Date: **8/13/2010**	Analyst: **ALR**
Aluminum	**0.158**		**0.0500**	**mg/L**	5	8/14/2010 11:59 AM
Arsenic	**0.0393**		**0.00500**	**mg/L**	1	8/14/2010 05:12 AM
Barium	**0.0218**		**0.00500**	**mg/L**	1	8/14/2010 05:12 AM
Beryllium	ND		0.00200	mg/L	1	8/14/2010 05:12 AM
Boron	**0.145**		**0.0200**	**mg/L**	1	8/14/2010 05:12 AM
Cadmium	ND		0.00200	mg/L	1	8/14/2010 05:12 AM
Calcium	**127**		**0.500**	**mg/L**	1	8/14/2010 05:12 AM
Chromium	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Cobalt	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Copper	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Iron	**0.387**		**0.200**	**mg/L**	1	8/14/2010 05:12 AM
Lead	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Magnesium	**39.0**		**0.200**	**mg/L**	1	8/14/2010 05:12 AM
Manganese	**0.0706**		**0.00500**	**mg/L**	1	8/14/2010 05:12 AM
Molybdenum	**0.120**		**0.00500**	**mg/L**	1	8/14/2010 05:12 AM
Nickel	**0.0106**		**0.00500**	**mg/L**	1	8/14/2010 05:12 AM
Potassium	**50.7**		**0.200**	**mg/L**	1	8/14/2010 05:12 AM
Selenium	**0.292**		**0.00500**	**mg/L**	1	8/14/2010 05:12 AM
Silver	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Sodium	**683**		**1.00**	**mg/L**	5	8/14/2010 11:59 AM
Vanadium	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Zinc	**1.30**		**0.00500**	**mg/L**	1	8/14/2010 05:12 AM
SEMIVOLATILES			**SW8270**		Prep Date: **8/13/2010**	Analyst: **KMB**
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2-Methylphenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2-Nitroaniline	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2-Nitrophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
3-Nitroaniline	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
4-Nitroaniline	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
4-Nitrophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Acenaphthene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Acenaphthylene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *25-Aug-10*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Inj Well
Collection Date: 8/11/2010 12:40 PM

Work Order: 1008405
Lab ID: 1008405-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Anthracene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Benzidine	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Hexachloroethane	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Isophorone	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Naphthalene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Nitrobenzene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Pentachlorophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Phenanthrene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Phenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Pyrene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Surr: 2,4,6-Tribromophenol	*75.6*		*42-124*	*%REC*	1	8/16/2010 03:00 PM
Surr: 2-Fluorobiphenyl	*69.7*		*48-120*	*%REC*	1	8/16/2010 03:00 PM
Surr: 2-Fluorophenol	*53.7*		*20-120*	*%REC*	1	8/16/2010 03:00 PM
Surr: 4-Terphenyl-d14	*63.3*		*51-135*	*%REC*	1	8/16/2010 03:00 PM
Surr: Nitrobenzene-d5	*66.8*		*41-120*	*%REC*	1	8/16/2010 03:00 PM
Surr: Phenol-d6	*54.8*		*20-120*	*%REC*	1	8/16/2010 03:00 PM
VOLATILES			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
2-Butanone	ND		0.010	mg/L	1	8/22/2010 02:58 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	8/22/2010 02:58 PM
2-Hexanone	ND		0.010	mg/L	1	8/22/2010 02:58 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	8/22/2010 02:58 PM
Acetone	**0.016**		**0.010**	**mg/L**	1	8/22/2010 02:58 PM
Benzene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Bromodichloromethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Bromoform	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Bromomethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Carbon disulfide	ND		0.010	mg/L	1	8/22/2010 02:58 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	8/22/2010 02:58 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *25-Aug-10*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Inj Well
Collection Date: 8/11/2010 12:40 PM

Work Order: 1008405
Lab ID: 1008405-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Chloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Chloroform	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Chloromethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Dibromochloromethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Ethylbenzene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
m,p-Xylene	**0.011**		**0.010**	**mg/L**	1	8/22/2010 02:58 PM
Methylene chloride	ND		0.010	mg/L	1	8/22/2010 02:58 PM
Styrene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Tetrachloroethene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Toluene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Trichloroethene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Vinyl acetate	ND		0.010	mg/L	1	8/22/2010 02:58 PM
Vinyl chloride	ND		0.0020	mg/L	1	8/22/2010 02:58 PM
Xylenes, Total	ND		0.015	mg/L	1	8/22/2010 02:58 PM
Surr: 1,2-Dichloroethane-d4	*105*		*70-125*	*%REC*	1	8/22/2010 02:58 PM
Surr: 4-Bromofluorobenzene	*104*		*72-125*	*%REC*	1	8/22/2010 02:58 PM
Surr: Dibromofluoromethane	*106*		*71-125*	*%REC*	1	8/22/2010 02:58 PM
Surr: Toluene-d8	*112*		*75-125*	*%REC*	1	8/22/2010 02:58 PM
REACTIVE CYANIDE			**SW-846**			Analyst: **HN**
Reactive Cyanide	ND		40.0	mg/Kg	1	8/19/2010 12:30 PM
REACTIVE SULFIDE			**SW-846**			Analyst: **HN**
Reactive Sulfide	ND		40.0	mg/Kg	1	8/19/2010 12:30 PM
ANIONS			**E300**			Analyst: **DM**
Chloride	**195**		**5.00**	**mg/L**	10	8/18/2010 04:42 PM
Sulfate	**1,580**		**50.0**	**mg/L**	100	8/18/2010 04:57 PM
Surr: Selenate (surr)	*104*		*85-115*	*%REC*	1	8/12/2010 06:26 PM
Surr: Selenate (surr)	*93.9*		*85-115*	*%REC*	100	8/18/2010 04:57 PM
Surr: Selenate (surr)	*98.2*		*85-115*	*%REC*	10	8/18/2010 04:42 PM
ALKALINITY			**SM2320B**			Analyst: **TDW**
Alkalinity, Bicarbonate (As CaCO3)	**219**		**5.00**	**mg/L**	1	8/24/2010 02:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	8/24/2010 02:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	8/24/2010 02:00 PM
Alkalinity, Total (As CaCO3)	**219**		**5.00**	**mg/L**	1	8/24/2010 02:00 PM
SPECIFIC CONDUCTIVITY			**M2510 B**			Analyst: **TDW**
Specific Conductivity	**3,860**		**1.00**	**µmhos/cm**	1	8/19/2010 01:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: *25-Aug-10*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Inj Well
Collection Date: 8/11/2010 12:40 PM

Work Order: 1008405
Lab ID: 1008405-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**SM4500H+ B**			Analyst: **JLC**
pH	7.12	H	0.100	pH units	1	8/12/2010
TOTAL DISSOLVED SOLIDS			**M2540C**			Analyst: **JLC**
Total Dissolved Solids (Residue, Filterable)	7,080		10.0	mg/L	1	8/12/2010

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **45294** Instrument ID **ICPMS03** Method: **SW6020**

MBLK Sample ID: **MBLKW3-081310-45294** Units: **mg/L** Analysis Date: **8/14/2010 11:22 AM**

Client ID: Run ID: **ICPMS03_100813A** SeqNo: **2061716** Prep Date: **8/13/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004821	0.010								J
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	0.005306	0.050								J
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	0.002978	0.0050								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **45294** Instrument ID **ICPMS03** Method: **SW6020**

LCS Sample ID: **MLCSW3-081310-45294** Units: **mg/L** Analysis Date: **8/14/2010 03:22 AM**

Client ID: Run ID: **ICPMS03_100813A** SeqNo: **2061644** Prep Date: **8/13/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09599	0.010	0.1	0	96	80-120	0			
Arsenic	0.04807	0.0050	0.05	0	96.1	80-120	0			
Barium	0.04977	0.0050	0.05	0	99.5	80-120	0			
Beryllium	0.04866	0.0020	0.05	0	97.3	80-120	0			
Boron	0.4518	0.050	0.5	0	90.4	80-120	0			
Cadmium	0.04928	0.0020	0.05	0	98.6	80-120	0			
Calcium	4.877	0.50	5	0	97.5	80-120	0			
Chromium	0.04784	0.0050	0.05	0	95.7	80-120	0			
Cobalt	0.04874	0.0050	0.05	0	97.5	80-120	0			
Copper	0.04897	0.0050	0.05	0	97.9	80-120	0			
Iron	4.755	0.20	5	0	95.1	80-120	0			
Lead	0.04831	0.0050	0.05	0	96.6	80-120	0			
Magnesium	4.848	0.20	5	0	97	80-120	0			
Manganese	0.04823	0.0050	0.05	0	96.5	80-120	0			
Molybdenum	0.0471	0.0050	0.05	0	94.2	80-120	0			
Nickel	0.05004	0.0050	0.05	0	100	80-120	0			
Potassium	4.742	0.20	5	0	94.8	80-120	0			
Selenium	0.04953	0.0050	0.05	0	99.1	80-120	0			
Silver	0.04959	0.0050	0.05	0	99.2	80-120	0			
Sodium	4.807	0.20	5	0	96.1	80-120	0			
Vanadium	0.04727	0.0050	0.05	0	94.5	80-120	0			
Zinc	0.0529	0.0050	0.05	0	106	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **45294** Instrument ID **ICPMS03** Method: **SW6020**

MS Sample ID: **1008401-15CMS** Units: **mg/L** Analysis Date: **8/14/2010 03:43 AM**

Client ID: Run ID: **ICPMS03_100813A** SeqNo: **2061648** Prep Date: **8/13/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.5743	0.010	0.1	0.4728	102	80-120	0			O
Arsenic	0.08485	0.0050	0.05	0.0361	97.5	80-120	0			
Barium	0.06486	0.0050	0.05	0.01611	97.5	80-120	0			
Beryllium	0.04754	0.0020	0.05	0.0003813	94.3	80-120	0			
Boron	0.7433	0.050	0.5	0.2716	94.3	80-120	0			
Cadmium	0.04778	0.0020	0.05	0.0002854	95	80-120	0			
Calcium	63.93	0.50	5	58.96	99.4	80-120	0			O
Chromium	0.04825	0.0050	0.05	0.0007848	94.9	80-120	0			
Cobalt	0.04755	0.0050	0.05	0.0003192	94.5	80-120	0			
Copper	0.04809	0.0050	0.05	0.001347	93.5	80-120	0			
Iron	4.686	0.20	5	0.1167	91.4	80-120	0			
Lead	0.0491	0.0050	0.05	0.001824	94.6	80-120	0			
Magnesium	13.33	0.20	5	8.817	90.3	80-120	0			
Manganese	0.08577	0.0050	0.05	0.03932	92.9	80-120	0			
Molybdenum	0.05006	0.0050	0.05	0.003368	93.4	80-120	0			
Nickel	0.04817	0.0050	0.05	0.001961	92.4	80-120	0			
Potassium	10.06	0.20	5	5.465	91.9	80-120	0			
Selenium	0.05139	0.0050	0.05	0.001186	100	80-120	0			
Silver	0.04626	0.0050	0.05	0.000173	92.2	80-120	0			
Sodium	131.2	0.20	5	128.1	62	80-120	0			SO
Vanadium	0.06417	0.0050	0.05	0.01699	94.4	80-120	0			
Zinc	0.06945	0.0050	0.05	0.02342	92.1	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **45294** Instrument ID **ICPMS03** Method: **SW6020**

MSD Sample ID: **1008401-15CMSD** Units: **mg/L** Analysis Date: **8/14/2010 03:48 AM**

Client ID: Run ID: **ICPMS03_100813A** SeqNo: **2061649** Prep Date: **8/13/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.5766	0.010	0.1	0.4728	104	80-120	0.5743	0.4	15	O
Arsenic	0.08708	0.0050	0.05	0.0361	102	80-120	0.08485	2.59	15	
Barium	0.06457	0.0050	0.05	0.01611	96.9	80-120	0.06486	0.448	15	
Beryllium	0.0482	0.0020	0.05	0.0003813	95.6	80-120	0.04754	1.38	15	
Boron	0.7321	0.050	0.5	0.2716	92.1	80-120	0.7433	1.52	15	
Cadmium	0.0473	0.0020	0.05	0.0002854	94	80-120	0.04778	1.01	15	
Calcium	66.18	0.50	5	58.96	144	80-120	63.93	3.46	15	SO
Chromium	0.04936	0.0050	0.05	0.0007848	97.2	80-120	0.04825	2.27	15	
Cobalt	0.04859	0.0050	0.05	0.0003192	96.5	80-120	0.04755	2.16	15	
Copper	0.04888	0.0050	0.05	0.001347	95.1	80-120	0.04809	1.63	15	
Iron	4.748	0.20	5	0.1167	92.6	80-120	4.686	1.31	15	
Lead	0.04924	0.0050	0.05	0.001824	94.8	80-120	0.0491	0.285	15	
Magnesium	13.52	0.20	5	8.817	94.1	80-120	13.33	1.42	15	
Manganese	0.08794	0.0050	0.05	0.03932	97.2	80-120	0.08577	2.5	15	
Molybdenum	0.05141	0.0050	0.05	0.003368	96.1	80-120	0.05006	2.66	15	
Nickel	0.04816	0.0050	0.05	0.001961	92.4	80-120	0.04817	0.0208	15	
Potassium	10.17	0.20	5	5.465	94.1	80-120	10.06	1.09	15	
Selenium	0.05134	0.0050	0.05	0.001186	100	80-120	0.05139	0.0973	15	
Silver	0.04755	0.0050	0.05	0.000173	94.8	80-120	0.04626	2.75	15	
Sodium	133.6	0.20	5	128.1	110	80-120	131.2	1.81	15	O
Vanadium	0.06662	0.0050	0.05	0.01699	99.3	80-120	0.06417	3.75	15	
Zinc	0.07304	0.0050	0.05	0.02342	99.2	80-120	0.06945	5.04	15	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **45294** Instrument ID **ICPMS03** Method: **SW6020**

DUP Sample ID: **1008401-15CDUP** Units: **mg/L** Analysis Date: **8/14/2010 03:32 AM**

Client ID: Run ID: **ICPMS03_100813A** SeqNo: **2061646** Prep Date: **8/13/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.4951	0.010	0	0	0	-0 0	0.4728	4.61	25	
Arsenic	0.03893	0.0050	0	0	0	-0 0	0.0361	7.54	25	
Barium	0.01569	0.0050	0	0	0	-0 0	0.01611	2.64	25	
Beryllium	0.0003103	0.0020	0	0	0	-0 0	0.0003813	0	25	J
Boron	0.2882	0.050	0	0	0	-0 0	0.2716	5.93	25	
Cadmium	ND	0.0020	0	0	0	-0 0	0.0002854	0	25	
Calcium	63.15	0.50	0	0	0	-0 0	58.96	6.86	25	
Chromium	0.000633	0.0050	0	0	0	-0 0	0.0007848	0	25	J
Cobalt	ND	0.0050	0	0	0	-0 0	0.0003192	0	25	
Copper	0.001327	0.0050	0	0	0	-0 0	0.001347	0	25	J
Iron	ND	0.20	0	0	0	-0 0	0.1167	0	25	
Lead	0.001843	0.0050	0	0	0	-0 0	0.001824	0	25	J
Magnesium	9.285	0.20	0	0	0	-0 0	8.817	5.17	25	
Manganese	0.04182	0.0050	0	0	0	-0 0	0.03932	6.16	25	
Molybdenum	0.003335	0.0050	0	0	0	-0 0	0.003368	0	25	J
Nickel	0.001997	0.0050	0	0	0	-0 0	0.001961	0	25	J
Potassium	5.762	0.20	0	0	0	-0 0	5.465	5.29	25	
Selenium	ND	0.0050	0	0	0	-0 0	0.001186	0	25	
Silver	ND	0.0050	0	0	0	-0 0	0.000173	0	25	
Sodium	133.6	0.20	0	0	0	-0 0	128.1	4.2	25	
Vanadium	0.01813	0.0050	0	0	0	-0 0	0.01699	6.49	25	
Zinc	0.02401	0.0050	0	0	0	-0 0	0.02342	2.49	25	

The following samples were analyzed in this batch: 1008405-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **45414** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW1-081910-45414** Units: **mg/L** Analysis Date: **8/19/2010 02:36 PM**
Client ID: Run ID: **MERCURY_100819B** SeqNo: **2066994** Prep Date: **8/19/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW1-081910-45414** Units: **mg/L** Analysis Date: **8/19/2010 02:38 PM**
Client ID: Run ID: **MERCURY_100819B** SeqNo: **2066995** Prep Date: **8/19/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00473	0.00020	0.005	0	94.6	85-115	0			

MS Sample ID: **1008604-01CMS** Units: **mg/L** Analysis Date: **8/19/2010 02:47 PM**
Client ID: Run ID: **MERCURY_100819B** SeqNo: **2066998** Prep Date: **8/19/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00542	0.00020	0.005	0.000023	108	85-115	0			

MSD Sample ID: **1008604-01CMSD** Units: **mg/L** Analysis Date: **8/19/2010 02:49 PM**
Client ID: Run ID: **MERCURY_100819B** SeqNo: **2066999** Prep Date: **8/19/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00541	0.00020	0.005	0.000023	108	85-115	0.00542	0.185	20	

DUP Sample ID: **1008604-01CDUP** Units: **mg/L** Analysis Date: **8/19/2010 02:45 PM**
Client ID: Run ID: **MERCURY_100819B** SeqNo: **2066997** Prep Date: **8/19/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	-0 0	0.000023	0	20	

The following samples were analyzed in this batch: 1008405-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **45299** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKW2-100813-45299** Units: **µg/L** Analysis Date: **8/16/2010 12:23 PM**

Client ID: Run ID: **SV-3_100813D** SeqNo: **2062945** Prep Date: **8/13/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*73.51*	5.0	*100*	0	*73.5*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*74.53*	5.0	*100*	0	*74.5*	*48-120*	0			
Surr: 2-Fluorophenol	*57.17*	5.0	*100*	0	*57.2*	*20-120*	0			
Surr: 4-Terphenyl-d14	*70.97*	5.0	*100*	0	*71*	*51-135*	0			
Surr: Nitrobenzene-d5	*70.15*	5.0	*100*	0	*70.2*	*41-120*	0			
Surr: Phenol-d6	*54.08*	5.0	*100*	0	*54.1*	*20-120*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **45299** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID: **SLCSW3-100813-45299** Units: **µg/L** Analysis Date: **8/16/2010 12:45 PM**

Client ID: Run ID: **SV-3_100813D** SeqNo: **2062946** Prep Date: **8/13/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.08	5.0	50	0	86.2	50-120	0			
2,4,5-Trichlorophenol	79.89	5.0	100	0	79.9	50-120	0			
2,4,6-Trichlorophenol	79.12	5.0	100	0	79.1	50-120	0			
2-Methylnaphthalene	38.68	5.0	50	0	77.4	55-120	0			
2-Methylphenol	62.86	5.0	100	0	62.9	50-120	0			
2-Nitroaniline	49.51	5.0	50	0	99	55-120	0			
2-Nitrophenol	78.36	5.0	100	0	78.4	55-120	0			
3&4-Methylphenol	93.63	5.0	150	0	62.4	55-120	0			
3-Nitroaniline	34.07	5.0	50	0	68.1	40-120	0			
4-Nitroaniline	38.23	5.0	50	0	76.5	50-120	0			
4-Nitrophenol	84.84	5.0	100	0	84.8	45-120	0			
Acenaphthene	41.05	5.0	50	0	82.1	55-120	0			
Acenaphthylene	41.48	5.0	50	0	83	55-120	0			
Aniline	25.68	5.0	50	0	51.4	30-120	0			
Anthracene	43.56	5.0	50	0	87.1	55-120	0			
Benz(a)anthracene	44.87	5.0	50	0	89.7	55-120	0			
Benzidine	24.38	5.0	50	0	48.8	10-120	0			
Hexachloroethane	38.16	5.0	50	0	76.3	55-120	0			
Indeno(1,2,3-cd)pyrene	43.25	5.0	50	0	86.5	55-120	0			
Isophorone	37.48	5.0	50	0	75	55-120	0			
N-Nitrosodi-n-propylamine	32.41	5.0	50	0	64.8	50-120	0			
N-Nitrosodimethylamine	34.57	5.0	50	0	69.1	45-120	0			
N-Nitrosodiphenylamine	42.48	5.0	50	0	85	55-120	0			
Naphthalene	40.58	5.0	50	0	81.2	55-120	0			
Nitrobenzene	40.86	5.0	50	0	81.7	55-120	0			
Pentachlorophenol	89.43	5.0	100	0	89.4	55-120	0			
Phenanthrene	42.64	5.0	50	0	85.3	55-120	0			
Phenol	62.86	5.0	100	0	62.9	50-120	0			
Pyrene	43.02	5.0	50	0	86	55-120	0			
Surr: 2,4,6-Tribromophenol	*84.85*	5.0	*100*	0	*84.9*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*78.98*	5.0	*100*	0	*79*	*48-120*	0			
Surr: 2-Fluorophenol	*72.01*	5.0	*100*	0	*72*	*20-120*	0			
Surr: 4-Terphenyl-d14	*73.77*	5.0	*100*	0	*73.8*	*51-135*	0			
Surr: Nitrobenzene-d5	*79.98*	5.0	*100*	0	*80*	*41-120*	0			
Surr: Phenol-d6	*62.69*	5.0	*100*	0	*62.7*	*20-120*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **45299** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID: **SLCSDW3-100813-45299** Units: **µg/L** Analysis Date: **8/16/2010 01:08 PM**

Client ID: Run ID: **SV-3_100813D** SeqNo: **2062947** Prep Date: **8/13/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	39.72	5.0	50	0	79.4	50-120	43.08	8.13	20	
2,4,5-Trichlorophenol	77.7	5.0	100	0	77.7	50-120	79.89	2.77	20	
2,4,6-Trichlorophenol	74.62	5.0	100	0	74.6	50-120	79.12	5.85	20	
2-Methylnaphthalene	36.52	5.0	50	0	73	55-120	38.68	5.75	20	
2-Methylphenol	58.11	5.0	100	0	58.1	50-120	62.86	7.85	20	
2-Nitroaniline	45.47	5.0	50	0	90.9	55-120	49.51	8.51	20	
2-Nitrophenol	73.33	5.0	100	0	73.3	55-120	78.36	6.64	20	
3&4-Methylphenol	87.19	5.0	150	0	58.1	55-120	93.63	7.12	20	
3-Nitroaniline	32.83	5.0	50	0	65.7	40-120	34.07	3.73	20	
4-Nitroaniline	38.57	5.0	50	0	77.1	50-120	38.23	0.889	20	
4-Nitrophenol	84.34	5.0	100	0	84.3	45-120	84.84	0.589	20	
Acenaphthene	38.43	5.0	50	0	76.9	55-120	41.05	6.58	20	
Acenaphthylene	39.08	5.0	50	0	78.2	55-120	41.48	5.96	20	
Aniline	26.13	5.0	50	0	52.3	30-120	25.68	1.74	20	
Anthracene	41.23	5.0	50	0	82.5	55-120	43.56	5.5	20	
Benz(a)anthracene	41.02	5.0	50	0	82	55-120	44.87	8.95	20	
Benzidine	25.83	5.0	50	0	51.7	10-120	24.38	5.75	20	
Hexachloroethane	35.51	5.0	50	0	71	55-120	38.16	7.19	20	
Indeno(1,2,3-cd)pyrene	40.97	5.0	50	0	81.9	55-120	43.25	5.42	20	
Isophorone	35.25	5.0	50	0	70.5	55-120	37.48	6.13	20	
N-Nitrosodi-n-propylamine	29.75	5.0	50	0	59.5	50-120	32.41	8.54	20	
N-Nitrosodimethylamine	33.74	5.0	50	0	67.5	45-120	34.57	2.43	20	
N-Nitrosodiphenylamine	38.36	5.0	50	0	76.7	55-120	42.48	10.2	20	
Naphthalene	38.15	5.0	50	0	76.3	55-120	40.58	6.18	20	
Nitrobenzene	37.65	5.0	50	0	75.3	55-120	40.86	8.18	20	
Pentachlorophenol	83.89	5.0	100	0	83.9	55-120	89.43	6.39	20	
Phenanthrene	40.75	5.0	50	0	81.5	55-120	42.64	4.54	20	
Phenol	58.95	5.0	100	0	58.9	50-120	62.86	6.42	20	
Pyrene	38.06	5.0	50	0	76.1	55-120	43.02	12.2	20	
Surr: 2,4,6-Tribromophenol	*82.54*	5.0	*100*	0	*82.5*	*42-124*	84.85	*2.76*	*20*	
Surr: 2-Fluorobiphenyl	*76.75*	5.0	*100*	0	*76.7*	*48-120*	78.98	*2.87*	*20*	
Surr: 2-Fluorophenol	*66.49*	5.0	*100*	0	*66.5*	*20-120*	72.01	*7.98*	*20*	
Surr: 4-Terphenyl-d14	*68.54*	5.0	*100*	0	*68.5*	*51-135*	73.77	*7.34*	*20*	
Surr: Nitrobenzene-d5	*74.25*	5.0	*100*	0	*74.2*	*41-120*	79.98	*7.44*	*20*	
Surr: Phenol-d6	*58.13*	5.0	*100*	0	*58.1*	*20-120*	62.69	*7.56*	*20*	

The following samples were analyzed in this batch: 1008405-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R96065** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-082210-R96065** Units: **µg/L** Analysis Date: **8/22/2010 11:57 AM**

Client ID: Run ID: **VOA1_100822A** SeqNo: **2069725** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*46.5*	5.0	*50*	0	*93*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*52.77*	5.0	*50*	0	*106*	*72-125*	0			
Surr: Dibromofluoromethane	*50.96*	5.0	*50*	0	*102*	*71-125*	0			
Surr: Toluene-d8	*57.02*	5.0	*50*	0	*114*	*75-125*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R96065** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-082210-R96065** Units: **µg/L** Analysis Date: **8/22/2010 11:06 AM**

Client ID: Run ID: **VOA1_100822A** SeqNo: **2069724** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	50.25	5.0	50	0	101	80-120	0			
1,1,2,2-Tetrachloroethane	50.7	5.0	50	0	101	72-120	0			
1,1,2-Trichloroethane	51.13	5.0	50	0	102	80-120	0			
1,1-Dichloroethane	49.82	5.0	50	0	99.6	76-120	0			
1,1-Dichloroethene	48.95	5.0	50	0	97.9	73-124	0			
1,2-Dichloroethane	51.58	5.0	50	0	103	78-120	0			
2-Butanone	108.1	10	100	0	108	58-132	0			
2-Chloroethyl vinyl ether	110	10	100	0	110	74-120	0			
2-Hexanone	100.1	10	100	0	100	61-130	0			
4-Methyl-2-pentanone	98.34	10	100	0	98.3	65-127	0			
Acetone	99.41	10	100	0	99.4	59-137	0			
Benzene	54.47	5.0	50	0	109	73-121	0			
Bromodichloromethane	52.82	5.0	50	0	106	80-120	0			
Bromoform	48.16	5.0	50	0	96.3	79-120	0			
Bromomethane	49.82	5.0	50	0	99.6	66-137	0			
Carbon disulfide	101.4	10	100	0	101	68-141	0			
Carbon tetrachloride	46.93	5.0	50	0	93.9	75-124	0			
Chlorobenzene	48.07	5.0	50	0	96.1	80-120	0			
Chloroethane	49.98	5.0	50	0	100	76-121	0			
Chloroform	50.92	5.0	50	0	102	80-120	0			
Chloromethane	49.28	5.0	50	0	98.6	67-123	0			
cis-1,3-Dichloropropene	55.26	5.0	50	0	111	80-120	0			
Dibromochloromethane	51.43	5.0	50	0	103	80-120	0			
Ethylbenzene	51.37	5.0	50	0	103	80-120	0			
m,p-Xylene	93.5	10	100	0	93.5	78-121	0			
Methylene chloride	51.5	10	50	0	103	65-133	0			
Styrene	50.23	5.0	50	0	100	80-120	0			
Tetrachloroethene	50.32	5.0	50	0	101	79-120	0			
Toluene	50.7	5.0	50	0	101	80-120	0			
trans-1,3-Dichloropropene	49.84	5.0	50	0	99.7	80-120	0			
Trichloroethene	54.84	5.0	50	0	110	80-120	0			
Vinyl acetate	107.5	10	100	0	108	67-139	0			
Vinyl chloride	48.69	2.0	50	0	97.4	70-127	0			
Xylenes, Total	143.6	15	150	0	95.7	80-120	0			
Surr: 1,2-Dichloroethane-d4	*49.13*	5.0	*50*	0	*98.3*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*50.17*	5.0	*50*	0	*100*	*72-125*	0			
Surr: Dibromofluoromethane	*51.34*	5.0	*50*	0	*103*	*71-125*	0			
Surr: Toluene-d8	*56.69*	5.0	*50*	0	*113*	*75-125*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R96065** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **1008613-30AMS** Units: **µg/L** Analysis Date: **8/22/2010 01:40 PM**

Client ID: Run ID: **VOA1_100822A** SeqNo: **2069729** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.89	5.0	50	0	95.8	80-120	0			
1,1,2,2-Tetrachloroethane	48.01	5.0	50	0	96	72-120	0			
1,1,2-Trichloroethane	50.43	5.0	50	0	101	80-120	0			
1,1-Dichloroethane	50.63	5.0	50	0	101	76-120	0			
1,1-Dichloroethene	45.46	5.0	50	0	90.9	73-124	0			
1,2-Dichloroethane	52.26	5.0	50	0	105	78-120	0			
2-Butanone	99.21	10	100	0	99.2	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	98.14	10	100	0	98.1	61-130	0			
4-Methyl-2-pentanone	97.46	10	100	0	97.5	65-127	0			
Acetone	89.45	10	100	2.183	87.3	59-137	0			
Benzene	51.68	5.0	50	0	103	73-121	0			
Bromodichloromethane	52.27	5.0	50	0	105	80-120	0			
Bromoform	45.67	5.0	50	0	91.3	79-120	0			
Bromomethane	50.46	5.0	50	0	101	66-137	0			
Carbon disulfide	92.14	10	100	0	92.1	68-141	0			
Carbon tetrachloride	44.76	5.0	50	0	89.5	75-124	0			
Chlorobenzene	49.46	5.0	50	0	98.9	80-120	0			
Chloroethane	52.77	5.0	50	0	106	76-121	0			
Chloroform	50.45	5.0	50	0	101	80-120	0			
Chloromethane	50.16	5.0	50	0	100	67-123	0			
cis-1,3-Dichloropropene	52.49	5.0	50	0	105	80-120	0			
Dibromochloromethane	49.04	5.0	50	0	98.1	80-120	0			
Ethylbenzene	49.71	5.0	50	0	99.4	80-120	0			
m,p-Xylene	97.64	10	100	0	97.6	78-121	0			
Methylene chloride	50.2	10	50	0	100	65-133	0			
Styrene	49.94	5.0	50	0	99.9	80-120	0			
Tetrachloroethene	44.1	5.0	50	0	88.2	79-120	0			
Toluene	52.19	5.0	50	0	104	80-120	0			
trans-1,3-Dichloropropene	49.55	5.0	50	0	99.1	80-120	0			
Trichloroethene	50.41	5.0	50	0	101	80-120	0			
Vinyl acetate	101.2	10	100	0	101	67-139	0			
Vinyl chloride	43.31	2.0	50	0	86.6	70-127	0			
Xylenes, Total	148.2	15	150	0	98.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	*47.32*	5.0	*50*	0	*94.6*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*53.03*	5.0	*50*	0	*106*	*72-125*	0			
Surr: Dibromofluoromethane	*51.79*	5.0	*50*	0	*104*	*71-125*	0			
Surr: Toluene-d8	*56.22*	5.0	*50*	0	*112*	*75-125*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R96065** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **1008613-30AMSD** Units: **µg/L** Analysis Date: **8/22/2010 02:06 PM**

Client ID: Run ID: **VOA1_100822A** SeqNo: **2069730** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.02	5.0	50	0	96	80-120	47.89	0.269	20	
1,1,2,2-Tetrachloroethane	47.63	5.0	50	0	95.3	72-120	48.01	0.778	20	
1,1,2-Trichloroethane	51.12	5.0	50	0	102	80-120	50.43	1.36	20	
1,1-Dichloroethane	51.12	5.0	50	0	102	76-120	50.63	0.972	20	
1,1-Dichloroethene	48.08	5.0	50	0	96.2	73-124	45.46	5.59	20	
1,2-Dichloroethane	50.68	5.0	50	0	101	78-120	52.26	3.09	20	
2-Butanone	97.12	10	100	0	97.1	58-132	99.21	2.13	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	95.35	10	100	0	95.4	61-130	98.14	2.88	20	
4-Methyl-2-pentanone	95.54	10	100	0	95.5	65-127	97.46	1.99	20	
Acetone	82.69	10	100	2.183	80.5	59-137	89.45	7.86	20	
Benzene	53.73	5.0	50	0	107	73-121	51.68	3.89	20	
Bromodichloromethane	53.88	5.0	50	0	108	80-120	52.27	3.03	20	
Bromoform	46.06	5.0	50	0	92.1	79-120	45.67	0.867	20	
Bromomethane	51.65	5.0	50	0	103	66-137	50.46	2.33	20	
Carbon disulfide	94.91	10	100	0	94.9	68-141	92.14	2.96	20	
Carbon tetrachloride	44.85	5.0	50	0	89.7	75-124	44.76	0.198	20	
Chlorobenzene	49.03	5.0	50	0	98.1	80-120	49.46	0.874	20	
Chloroethane	49.21	5.0	50	0	98.4	76-121	52.77	6.97	20	
Chloroform	50.08	5.0	50	0	100	80-120	50.45	0.753	20	
Chloromethane	51.83	5.0	50	0	104	67-123	50.16	3.27	20	
cis-1,3-Dichloropropene	53.39	5.0	50	0	107	80-120	52.49	1.7	20	
Dibromochloromethane	50.95	5.0	50	0	102	80-120	49.04	3.84	20	
Ethylbenzene	52.67	5.0	50	0	105	80-120	49.71	5.77	20	
m,p-Xylene	103.6	10	100	0	104	78-121	97.64	5.95	20	
Methylene chloride	50.44	10	50	0	101	65-133	50.2	0.467	20	
Styrene	51.65	5.0	50	0	103	80-120	49.94	3.36	20	
Tetrachloroethene	46.9	5.0	50	0	93.8	79-120	44.1	6.15	20	
Toluene	50.95	5.0	50	0	102	80-120	52.19	2.41	20	
trans-1,3-Dichloropropene	48.6	5.0	50	0	97.2	80-120	49.55	1.93	20	
Trichloroethene	51.3	5.0	50	0	103	80-120	50.41	1.75	20	
Vinyl acetate	100.3	10	100	0	100	67-139	101.2	0.887	20	
Vinyl chloride	46.86	2.0	50	0	93.7	70-127	43.31	7.88	20	
Xylenes, Total	156.6	15	150	0	104	80-120	148.2	5.51	20	
Surr: 1,2-Dichloroethane-d4	*48.98*	5.0	*50*	0	*98*	*70-125*	47.32	*3.45*	*20*	
Surr: 4-Bromofluorobenzene	*52.14*	5.0	*50*	0	*104*	*72-125*	53.03	*1.69*	*20*	
Surr: Dibromofluoromethane	*51.92*	5.0	*50*	0	*104*	*71-125*	51.79	*0.246*	*20*	
Surr: Toluene-d8	*56.22*	5.0	*50*	0	*112*	*75-125*	56.22	*0.00834*	*20*	

The following samples were analyzed in this batch: 1008405-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R95598** Instrument ID **WetChem** Method: **SM4500H+ B**

LCS Sample ID: **WLCS-081210-R95598** Units: **pH units** Analysis Date: **8/12/2010**
Client ID: Run ID: **WETCHEM_100812E** SeqNo: **2060107** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	90-110	0			

DUP Sample ID: **1008377-01CDUP** Units: **pH units** Analysis Date: **8/12/2010**
Client ID: Run ID: **WETCHEM_100812E** SeqNo: **2060115** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7	0.10	0	0	0	-0 0	7.01	0.143	20	H

The following samples were analyzed in this batch: 1008405-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R95629** Instrument ID **Balance1** Method: **M2540C**

MBLK Sample ID: **BLANK-R95629** Units: **mg/L** Analysis Date: **8/12/2010**
Client ID: Run ID: **BALANCE1_100812D** SeqNo: **2060924** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS-R95629** Units: **mg/L** Analysis Date: **8/12/2010**
Client ID: Run ID: **BALANCE1_100812D** SeqNo: **2060925** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	958	10	1000	0	95.8	85-115	0			

DUP Sample ID: **1008300-02ADUP** Units: **mg/L** Analysis Date: **8/12/2010**
Client ID: Run ID: **BALANCE1_100812D** SeqNo: **2060914** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	5094	10	0	0	0	0-0	5070	0.472	20	

The following samples were analyzed in this batch: 1008405-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R95869** Instrument ID **ICS2100** Method: **E300**

MBLK Sample ID: **WBLKW3-081810-R95869** Units: **mg/L** Analysis Date: **8/18/2010 09:24 AM**
Client ID: Run ID: **ICS2100_100818A** SeqNo: **2066137** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*5.254*	0.10	*5*	0	*105*	*85-115*	0			

LCS Sample ID: **WLCSW3-081810-R95869** Units: **mg/L** Analysis Date: **8/18/2010 09:39 AM**
Client ID: Run ID: **ICS2100_100818A** SeqNo: **2066138** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.49	0.50	20	0	92.4	90-110	0			
Sulfate	18.31	0.50	20	0	91.6	90-110	0			
Surr: Selenate (surr)	*5.057*	0.10	*5*	0	*101*	*85-115*	0			

LCSD Sample ID: **WLCSDW3-081810-R95869** Units: **mg/L** Analysis Date: **8/18/2010 09:53 AM**
Client ID: Run ID: **ICS2100_100818A** SeqNo: **2066139** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.05	0.50	20	0	100	90-110	18.49	8.13	20	
Sulfate	19.54	0.50	20	0	97.7	90-110	18.31	6.48	20	
Surr: Selenate (surr)	*5.034*	0.10	*5*	0	*101*	*85-115*	5.057	*0.456*	*20*	

MS Sample ID: **1008508-01BMS** Units: **mg/L** Analysis Date: **8/18/2010 10:55 AM**
Client ID: Run ID: **ICS2100_100818A** SeqNo: **2066143** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	90.43	0.50	10	91.62	-12	80-120	0			SO
Sulfate	15.95	0.50	10	7.871	80.8	80-120	0			
Surr: Selenate (surr)	*4.753*	0.10	*5*	0	*95.1*	*85-115*	0			

MS Sample ID: **1008390-02CMS** Units: **mg/L** Analysis Date: **8/18/2010 01:19 PM**
Client ID: Run ID: **ICS2100_100818A** SeqNo: **2066150** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	14.72	0.50	10	4.689	100	80-120	0			
Sulfate	9.731	0.50	10	0.414	93.2	80-120	0			
Surr: Selenate (surr)	*4.836*	0.10	*5*	0	*96.7*	*85-115*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R95869** Instrument ID **ICS2100** Method: **E300**

MSD Sample ID: **1008508-01BMSD** Units: **mg/L** Analysis Date: **8/18/2010 11:10 AM**
Client ID: Run ID: **ICS2100_100818A** SeqNo: **2066144** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	100.3	0.50	10	91.62	86.5	80-120	90.43	10.3	20	EO
Sulfate	17.86	0.50	10	7.871	99.8	80-120	15.95	11.3	20	
Surr: Selenate (surr)	*5.308*	0.10	*5*	0	*106*	*85-115*	4.753	*11*	*20*	

MSD Sample ID: **1008390-02CMSD** Units: **mg/L** Analysis Date: **8/18/2010 01:33 PM**
Client ID: Run ID: **ICS2100_100818A** SeqNo: **2066152** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	14.58	0.50	10	4.689	98.9	80-120	14.72	0.908	20	
Sulfate	9.64	0.50	10	0.414	92.3	80-120	9.731	0.94	20	
Surr: Selenate (surr)	*4.791*	0.10	*5*	0	*95.8*	*85-115*	4.836	*0.935*	*20*	

The following samples were analyzed in this batch: 1008405-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R95895** Instrument ID **WetChem** Method: **M2510 B**

MBLK Sample ID: **WBLKW1-081910-R95895** Units: **µmhos/cm** Analysis Date: **8/19/2010 01:00 PM**
Client ID: Run ID: **WETCHEM_100819C** SeqNo: **2066728** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.0								

LCS Sample ID: **WLCSW1-081910-R95895** Units: **µmhos/cm** Analysis Date: **8/19/2010 01:00 PM**
Client ID: Run ID: **WETCHEM_100819C** SeqNo: **2066729** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1410	1.0	1413	0	99.8	80-120	0			

DUP Sample ID: **1008405-01CDUP** Units: **µmhos/cm** Analysis Date: **8/19/2010 01:00 PM**
Client ID: **Inj Well** Run ID: **WETCHEM_100819C** SeqNo: **2066733** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	3890	1.0	0	0	0		3860	0.774	20	

The following samples were analyzed in this batch: 1008405-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R96128** Instrument ID **WetChem** Method: **SM2320B**

MBLK Sample ID: **WBLKW1-082410-R96128** Units: **mg/L** Analysis Date: **8/24/2010 02:00 PM**

Client ID: Run ID: **WETCHEM_100824H** SeqNo: **2070984** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-082410-R96128** Units: **mg/L** Analysis Date: **8/24/2010 02:00 PM**

Client ID: Run ID: **WETCHEM_100824H** SeqNo: **2070985** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	994.4	5.0	1000	0	99.4	80-120	0			

DUP Sample ID: **1008445-01BDUP** Units: **mg/L** Analysis Date: **8/24/2010 02:00 PM**

Client ID: Run ID: **WETCHEM_100824H** SeqNo: **2070992** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	273.5	5.0	0	0	0	0-0	268.5	1.83	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	273.5	5.0	0	0	0	0-0	268.5	1.83	20	

The following samples were analyzed in this batch: 1008405-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1008405

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Units Reported	Description
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	

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Chain of Custody Form

Page ____ of ____

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Fax: +1 616 399 6185

ALS Project Manager: | ALS Work Order #: 1088416

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	CHEM CARE - HS	Project Name		A	VAPOR PRESSURE
Work Order	CHEVRON - CEDAR BAYOU	Project Number		B	IGNITABLE
Company Name	UNIVAR USA INC	Bill To Company	UNIVAR USA INC.	C	FLORIDE
Send Report To	KATHRYN HORTON	Invoice Attn	MANDY DAVIS	D	AMMONIA
Address	777 BRISBANE ST	Address	PO BOX 84889	E	N BUTHYL ALCOHOL
				F	TOC
City/State/Zip	HOUSTON, TX, 77061	City/State/Zip	SEATTLE, WA 98124	G	
Phone	713-641-9445	Phone	713-644-1601	H	
Fax	713-641-5423	Fax	713-641-5423	I	
e-Mail Address	KATHRYN.HORTON@UNIVARUSA.COM	e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	1592 LOADING RACK CP-191	08-09-10	0830	LIQUID	NEAT	4	X										24HR T/A
2	PAD SPILL CP-192	08-09-10	1000	LIQUID	NEAT	1		X	X	X	X	X					24HR T/A
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: JOHNATHAN TYLER

Shipment Method:

Required Turnaround Time: (Check Box) ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date: 8-11-10	Time: 1600	Received by:	Notes: 1600 8-11-10	
Relinquished by:	Date: 8.11.10	Time: 1105	Received by (Laboratory):	8/11/10 1105	Cooler ID / Cooler Temp
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Date ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.
2. Unless otherwise agreed in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Environmental

Date: 23-Aug-10

Client: ALS Laboratory Group
Project: 1008405
Work Order: **1008331**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1008331-01	1008405-01E	Water		8/11/2010 12:40	8/13/2010 12:00	☐

ALS Environmental

Date: 23-Aug-10

Client: ALS Laboratory Group
Project: 1008405
WorkOrder: 1008331

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution

Units Reported	Description
mg/Kg	Milligrams per Kilogram

ALS Environmental

Date: *23-Aug-10*

Client: ALS Laboratory Group
Project: 1008405
Sample ID: 1008405-01E
Collection Date: 8/11/2010 12:40 PM

Work Order: 1008331
Lab ID: 1008331-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **EE**
Cyanide, Reactive	ND		40.0	mg/Kg	1	8/19/2010 12:30 PM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **EE**
Sulfide, Reactive	ND		40.0	mg/Kg	1	8/19/2010 12:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Environmental

Date: 23-Aug-10

Client: ALS Laboratory Group
Work Order: 1008331
Project: 1008405

QC BATCH REPORT

Batch ID: **R80217** Instrument ID **WETCHEM** Method: **SW7.3.4.2**

MBLK Sample ID: **WBLKW1-081910-R80217** Units: **mg/Kg** Analysis Date: **8/19/2010 12:30 PM**

Client ID: Run ID: **WETCHEM_100819F** SeqNo: **1391118** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 1008331-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Laboratory Group
Work Order: 1008331
Project: 1008405

QC BATCH REPORT

Batch ID: **R80218** Instrument ID **WETCHEM** Method: **SW7.3.3.2**

MBLK Sample ID: **WBLKW1-081910-R80218** Units: **mg/Kg** Analysis Date: **8/19/2010 12:30 PM**
Client ID: Run ID: **WETCHEM_100819G** SeqNo: **1391142** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: **WLCSW1-081910-R80218** Units: **mg/Kg** Analysis Date: **8/19/2010 12:30 PM**
Client ID: Run ID: **WETCHEM_100819G** SeqNo: **1391143** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	75-125	0			

LCSD Sample ID: **WLCSDW1-081910-R80218** Units: **mg/Kg** Analysis Date: **8/19/2010 12:30 PM**
Client ID: Run ID: **WETCHEM_100819G** SeqNo: **1391149** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	75-125	249.6	6.06	35	

MS Sample ID: **1008432-01A MS** Units: **mg/Kg** Analysis Date: **8/19/2010 12:30 PM**
Client ID: Run ID: **WETCHEM_100819G** SeqNo: **1391147** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	50-150	0			

MSD Sample ID: **1008432-01A MSD** Units: **mg/Kg** Analysis Date: **8/19/2010 12:30 PM**
Client ID: Run ID: **WETCHEM_100819G** SeqNo: **1391148** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	50-150	234.9	0	35	

The following samples were analyzed in this batch: 1008331-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

WO# 1008331

Subcontractor:
ALS Laboratory Group
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 12-Aug-10
COC ID: 9208
Due Date 23-Aug-10

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order	10-2118974	Project Name	1008405	A Reactive Cyanide (SW-846)
Work Order		Project Number		B Reactive Sulfide (SW-846)
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C
Send Report To	JayLynn F Thibault	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jaylynn.thibault@alsenviro.com	eMail CC	glenda.ramos@alsglobal.com	J

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
1008405-01E (Inj Well)	Water	8/11/2010 12:40	(1) 1LPNEAT	X	X								

Comments:

Please analyze for Reactive Cyanide and Reactive Sulfide. Report is due on 8/23/10. Please send report to Hector Coronado, hector.coronado@alsglobal.com, and CC: results to Glenda Ramos, glenda.ramos@alsglobal.com

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
	8/12/10		8/13/10 1200		Std
Relinquished by:	Date/Time	Received by:	Date/Time		

ALS Environmental

Sample Receipt Checklist

Client Name: **ALS - HOUSTON** Date/Time Received: **13-Aug-10 12:00**

Work Order: **1008331** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 13-Aug-10 (Date) Reviewed by: Ann Preston (eSignature) 14-Aug-10 (Date)

Matrices: Water
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.2 C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

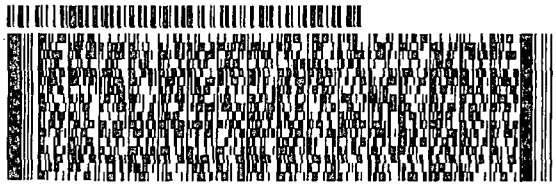
ORIGIN ID: JGQA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 12AUG10
ACTWGT: 36.0 LB
CAD: 300130/CAFE2453

BILL SENDER

TO **RECEIVING**
ALS LABORATORY
3352 128TH AVE.

HOLLAND MI 49424
(616) 399-6070
DEPT: SUB



FedEx Express

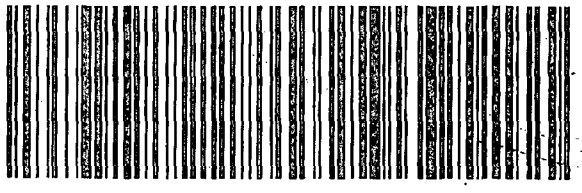
J092089113022223

FRI - 13AUG A4
PRIORITY OVERNIGHT

TRK# 0201 4340 2160 7190

MI GRRA

49424
MI-US
GRR



Part # 156148-434 NRIT V3 12-09

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING** Date/Time Received: **12-Aug-10 08:16**

Work Order: **1008405** Received by: **RNG**

Checklist completed by Raymond N Gamboa (eSignature) 12-Aug-10 (Date) Reviewed by: Jay Lynn F Thibault (eSignature) 12-Aug-10 (Date)

Matrices: Water
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.9c	002	
Cooler(s)/Kit(s):	7128		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Fiber Glass Systems, L.P
P.O. Box 37389
2425 S.W. 36th
San Antonio, Texas 78237 USA
210-434-5043
Fax: 210-434-7543
www.starfiberglass.com

Fiber Glass Systems

August 12, 2010

Holly Energy Partners, L.P.

Re. **Confirmation of Fiberglass Pipe Compatibility**

To Whom It May Concern:

We have been asked to provide a letter to Holly Energy confirming that our proposed fiberglass pipe is compatible with the chemical and operational parameters given for the 8" Water Effluent Pipeline Project. Please see the attached email on the subject.

Chemical Compatibility

We have reviewed the water constituents in the water analyses provided (attached) and do not find any constituent that would cause chemical incompatibility with our anhydride cured epoxy resin as long as the operations temperature never reaches above 150° F.

Operational Compatibility

The following operational parameters have been given in the attached literature:

- Service = Effluent water
- Maximum Operating Temperature = 130° F
- Flow Rate = 26000 bbl/day

From this, we can calculate the following:

- Flow Velocity = 5.5 ft/sec
- Friction Head Loss (ΔP) = 0.499 psi/100 ft

These parameters fall well within the recommended operating parameters for the proposed 8" pipe.

Please advise if there are any other subjects that need to be addressed for this project.

Sincerely,

Robert Hitchcock
Sr. Applications Engineer

Hitchcock, Robert

From: Graham, Dennis
Sent: Thursday, August 12, 2010 10:12 AM
To: Hitchcock, Robert
Subject: FW: 8" Water Effluent Pipeline Project
Attachments: Influent Water Quality.pdf

Importance: High

Robert,
I just received this from Clem at Holly. The way I read this we might need a more formal letter. II have already sent you response to them. Pleas e-mail Clem and see if that is satisfactory
Dennis.

From: Vasquez, Clemente [mailto:Clemente.Vasquez@hollyenergy.com]
Sent: Thursday, August 12, 2010 10:06 AM
To: Graham, Dennis
Cc: Sanchez, George; Jones, Kent
Subject: 8" Water Effluent Pipeline Project
Importance: High

Dennis:

Holly Corporation has made the decision to pursue with the design of a new fiberglass pipeline parallel to the current line.

Please start working up the latest pricing and lead time and see if you can reserve us a spot in the fabrication schedule for our order.

I expect 2 weeks from now we can provide you with a Purchase order.

Also we need a formal letter from NOV stating that they have reviewed our water samples and the pipe and resins and sealers that you all are quoting for this project meet all the design specifications required (temperature, pressure, flow rates, and etc).

Note the attached PDF has 3 effluent water samples, an average, and a City Water Sample for comparison (PH of water ranges from 7-9)
Max Temperature of water in pipeline = 130 deg F
Fluid = Effluent Water
Flow Rates = 750gpm or approx 26,000bbl/day

Clem Vasquez, EIT
Project Engineer
Technical Services
Holly Energy Partners, L.P.
Office Phone: 575-748-8973
Cell Phone: 214-478-4093
Fax: 214-237-3043
Email: clem.vasquez@hollyenergy.com

From: Graham, Dennis [mailto:Dennis.Graham@nov.com]
Sent: Thursday, July 29, 2010 7:52 AM
To: Sanchez, George; Jones, Kent; Vasquez, Clemente
Subject:

George,
Could one of you let me know what Holly ending up doing on the 8" water line? I have to do a report for my boss and this information sure would help me complete it with the correct information.
Thanks,
Dennis

Navajo Refinery
Influent Water Quality Data

Analyte	Units	Sample				
		API Sepator Inlet 6/23/2008 0930	API Sepator Inlet 6/23/2008 1440	API Sepator Inlet 6/24/2008 0855	API Separator Inlet Average	City Water 7/1/2008 1520
Total Hardness	mg/l as $CaCO_3$	644	770	601	672	640
Calcium	mg/l	144	233	157	178	176
Magnesium	mg/l	46.6	45.8	50.8	47.7	48.6
Iron	mg/l	0.503	6.17	1.14	3	0.208
Sodium	mg/l	248	269	273	263	21.8
Chloride	mg/l	327	374	375	359	37.5
Sulfate	mg/l	534	511	563	536	637
Silica	mg/l as SiO_2	15	19	18	17	20
Conductivity	umhos	2260	2610	2590	2487	1530
Alkalinity, Bicarb	mg/l as $CaCO_3$	157	261	195	204	
Alkalinity, Carb	mg/l as $CaCO_3$	105	196	188	163	
Alkalinity, Total	mg/l as $CaCO_3$	262	457	383	367	

Navajo Refinery
Recycled Water Quality

Analyte	Units	Feed Water from WWTP	Option 2 UF/RO		Option 3 Nanofiltration		Option 4 Cold Lime Softening
			Permeate	Concentrate	Permeate	Concentrate	Permeate
Design Flow Rate	gpm	500	360	140	360	140	500
Total Hardness	mg/l as $CaCO_3$	672					
Calcium	mg/l	178	30		30	556	10
Magnesium	mg/l	47.7	8.4		2.5	164	14.8
Iron	mg/l	3					
Sodium	mg/l	263	52		226	405	263
Chloride	mg/l	359	75		312	527	359
Sulfate	mg/l	536	98		28	1841	536
Silica	mg/l as SiO_2	17.3	3.3		16.5	19.4	15
Conductivity	umhos	2487					
TDS	mg/l	1561	312		736	3810	1200
CO3	mg/l	69			43	120	
HCO3	mg/l	44			33	87	

Fiber Glass Systems, L.P
P.O. Box 37389
2425 S.W. 36th
San Antonio, Texas 78237 USA
210-434-5043
Fax: 210-434-7543
www.starfiberglass.com

Fiber Glass Systems

November 12, 2010

Holly Energy Partners, L.P.

Re. **Confirmation of Fiberglass Pipe Compatibility – Followup to Letter on Same Subject of August 12, 2010**

To Whom It May Concern:

On November 9, 2010, we received a message from Holly Energy requesting that we review a more recent water analysis to determine if any new incompatibilities were detected between the water sample and our proposed anhydride cured epoxy resin pipe. Please see the attached email on the subject.

Chemical Compatibility

We have reviewed the water constituents in the water analyses provided and again do not find any constituent that would cause chemical incompatibility with our anhydride cured epoxy resin as long as the operations temperature never reaches above 150° F. The water analysis shows the water to be of very low salinity and with a pH very slightly above neutral.

Please advise if there are any other subjects that need to be addressed for this project.

Sincerely,

Robert Hitchcock
Sr. Applications Engineer