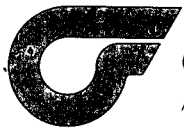


**GW - 1**

**REPORTS**

**YEAR(S):**

**1991**



Bloomfield Refining  
Company

A Gary Energy Corporation Subsidiary

OIL CONSERVATION DIVISION  
RECEIVED

'91 OCT 30 AM 8 38

October 29, 1991

Mr. David Boyer  
New Mexico Oil Conservation Division  
Land Office Building  
P. O. Box 2088  
Santa Fe, New Mexico 87504-2088

RE: Groundwater Remediation

Dear Mr. Boyer:

Please be advised that we put four more groundwater recovery wells into service on October 28, 1991. These are identified as RW-14, RW-15, RW-16, and RW-17. Wells RW-2, RW-3, and RW-19 continue in service, bringing our total to seven. We are now proceeding with the pump installation at RW-18.

Each of the recovery wells are equipped with top-filling, air-operated pumps. At this time, we have set the inlets near the product interface to maximize free product recovery. They are checked and adjusted, as required, on a weekly basis. Liquids are all routed to a small tank, used for gauging recovery rates, that is emptied to the refinery sewer system (to the API separator).

I have attached the results of a complete groundwater elevation survey that I completed on October 21, 1991. As you can see from the hydrocarbon thickness measurements, our recovery wells are in good locations.

Please call me if you have any comments or questions about our system.

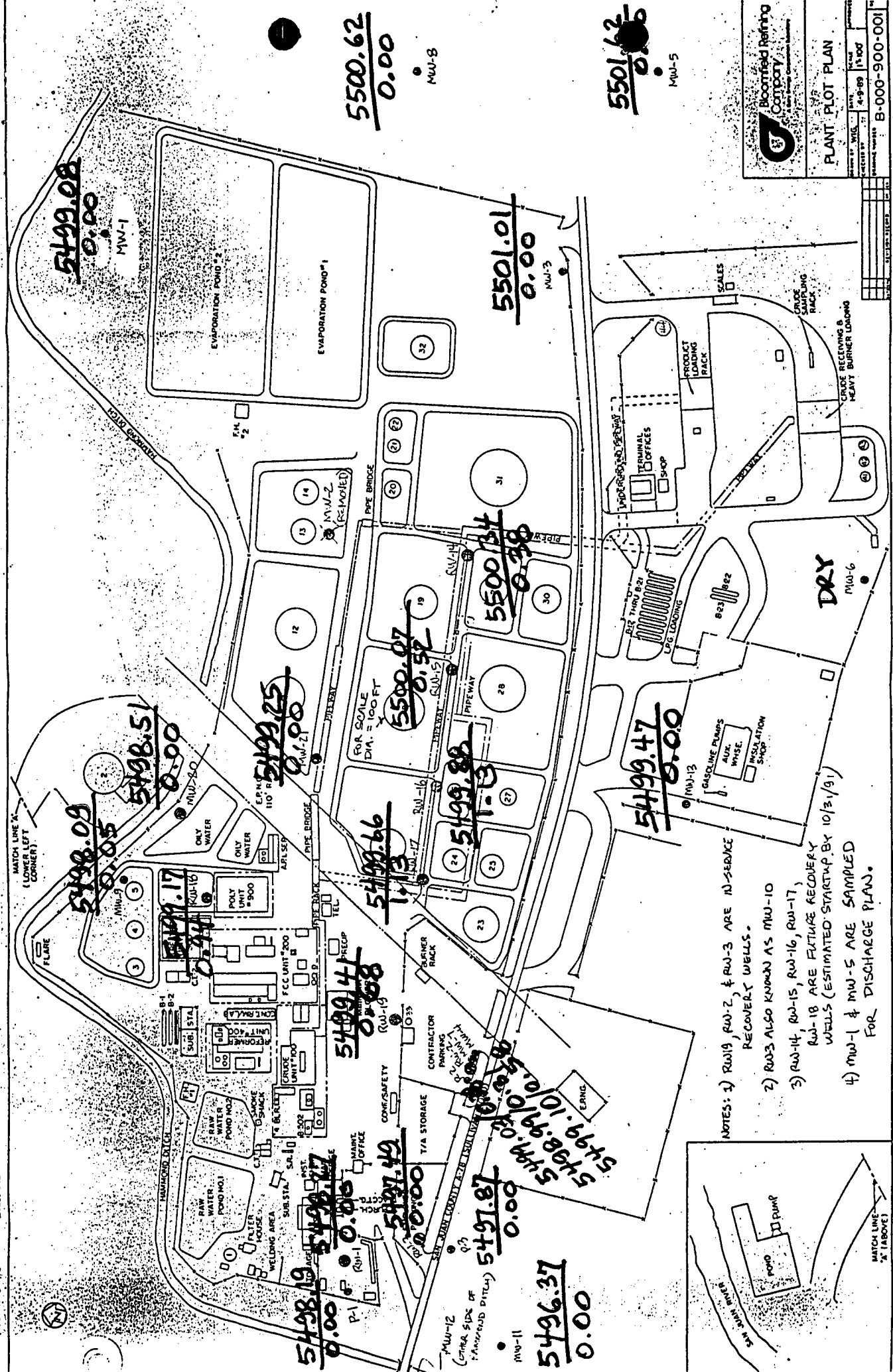
Sincerely yours,

Chris Hawley  
Environmental Manager

CH/jm

Enclosure

cc: Dave Roderick  
Joe Warr  
John Goodrich



**Boonville Refining**  
**Company**

**PLANT PLOT PLAN**

|                |        |          |               |             |
|----------------|--------|----------|---------------|-------------|
| PROJECT NO.    | DATE   | DRAWN BY | CHECKED BY    | APPROVED BY |
| 77             | 4-9-89 | 11-100   | 11-100        | 11-100      |
| PROJECT NUMBER |        |          | B-000-900-001 |             |

- NOTES:
- 1) RW-19, RW-2, & RW-3 ARE IN-SERVICE RECOVERY WELLS.
  - 2) RW-3 ALSO KNOWN AS MW-10
  - 3) RW-14, RW-15, RW-16, RW-17, RW-18 ARE FUTURE RECOVERY WELLS (ESTIMATED STARTUP BY 10/31/91)
  - 4) MW-1 & MW-5 ARE SAMPLED FOR DISCHARGE PLAN.

ADT. GW ELEVATION  
HC THICKNESS  
 DATE OF MEASUREMENTS : 10/21/91

BLOOMFIELD REFINING COMPANY

GROUNDWATER ELEVATIONS: 10/21/91

| WELL<br>NUMBER | ELEVATION<br>T.O.P. (FT) | FR T.O.P.<br>TO H2O<br>(FT) | ELEVATION<br>GW (FT) | THKNESS<br>HC (FT) | ELEVATION<br>TOP OF<br>LIQ (FT) | ADJ GW<br>ELEVATION<br>(FT) |
|----------------|--------------------------|-----------------------------|----------------------|--------------------|---------------------------------|-----------------------------|
| MW-1           | 5515.77                  | 16.69                       | 5499.08              | 0.00               | 5499.08                         | 5499.08                     |
| MW-3           | 5535.85                  | 34.84                       | 5501.01              | 0.00               | 5501.01                         | 5501.01                     |
| MW-4           | 5524.30                  | 25.65                       | 5498.65              | 0.58               | 5499.23                         | 5499.10                     |
| MW-5           | 5545.10                  | 43.48                       | 5501.62              | 0.00               | 5501.62                         | 5501.62                     |
| MW-6           | 5551.23                  |                             |                      |                    |                                 |                             |
| MW-7           | 5524.09                  | 24.15                       | 5499.94              | 0.00               | 5499.94                         | 5499.94                     |
| MW-8           | 5531.12                  | 30.50                       | 5500.62              | 0.00               | 5500.62                         | 5500.62                     |
| MW-9           | 5519.70                  | 21.65                       | 5498.05              | 0.05               | 5498.10                         | 5498.09                     |
| MW-11          | 5506.83                  | 10.46                       | 5496.37              | 0.00               | 5496.37                         | 5496.37                     |
| MW-12          | 5498.36                  | 9.91                        | 5488.45              | 0.00               | 5488.45                         | 5488.45                     |
| MW-13          | 5538.42                  | 38.95                       | 5499.47              | 0.00               | 5499.47                         | 5499.47                     |
| MW-20          | 5516.44                  | 17.93                       | 5498.51              | 0.00               | 5498.51                         | 5498.51                     |
| MW-21          | 5518.64                  | 19.39                       | 5499.25              | 0.00               | 5499.25                         | 5499.25                     |
| RW-1           | 5525.92                  | 27.65                       | 5498.27              | 0.00               | 5498.27                         | 5498.27                     |
| P-1            | 5524.62                  | 26.43                       | 5498.19              | 0.00               | 5498.19                         | 5498.19                     |
| RW-2           | 5523.48                  | 24.73                       | 5498.75              | 0.31               | 5499.06                         | 5498.99                     |
| P-2            | 5523.73                  | 25.00                       | 5498.73              | 0.38               | 5499.11                         | 5499.03                     |
| RW-3           | 5516.86                  | 19.37                       | 5497.49              | 0.00               | 5497.49                         | 5497.49                     |
| P-3            | 5507.20                  | 9.33                        | 5497.87              | 0.00               | 5497.87                         | 5497.87                     |
| RW-14          | 5533.97                  | 33.93                       | 5500.04              | 0.38               | 5500.42                         | 5500.34                     |
| RW-15          | 5533.32                  | 33.66                       | 5499.66              | 0.52               | 5500.18                         | 5500.07                     |
| RW-16          | 5531.99                  | 32.99                       | 5499.00              | 1.13               | 5500.13                         | 5499.88                     |
| RW-17          | 5530.43                  | 31.65                       | 5498.78              | 1.13               | 5499.91                         | 5499.66                     |
| RW-18          | 5527.05                  | 28.61                       | 5498.44              | 0.94               | 5499.38                         | 5499.17                     |
| RW-19          | 5527.08                  | 28.20                       | 5498.88              | 0.68               | 5499.56                         | 5499.41                     |

NOTE: ADJUSTED GROUNDWATER ELEVATION IS DETERMINED BY ADDING  
78% OF THE HYDROCARBON THICKNESS TO THE ACTUAL  
GROUNDWATER ELEVATION.

## BLOOMFIELD REFINING COMPANY

## GROUNDWATER MONITORING/RECOVERY WELL DATA

| WELL<br>NUMBER | ELEVATION<br>T.O.P. (FT) | STICKUP<br>(FT) | ELEVATION<br>GRADE (FT) | APPROX<br>GW<br>ELEV | TOTAL                         |                               | ELEVATION<br>TOP OF<br>SCREEN | ELEVATION<br>BOTTOM OF<br>SCREEN | ELEVATION<br>TOP OF<br>GRAVEL | ELEVATION<br>TOP OF<br>NACIMIENTO | INSTALLATION<br>DATE |
|----------------|--------------------------|-----------------|-------------------------|----------------------|-------------------------------|-------------------------------|-------------------------------|----------------------------------|-------------------------------|-----------------------------------|----------------------|
|                |                          |                 |                         |                      | DEPTH OF<br>CASING<br>FR. TOP | ELEVATION<br>TOP OF<br>SCREEN |                               |                                  |                               |                                   |                      |
| MW-1           | 5515.77                  | 1.7             | 5514.07                 | 5499                 | 24.65                         | 5511.12                       | 5491.12                       | 5502.07                          | 5492.07                       | 02/08/84                          |                      |
| MW-2           | 5519.45                  | 1.5             | 5517.95                 | 5500                 | 26.90                         | 5512.55                       | 5492.55                       | 5502.95                          | 5492.95                       | 02/08/84                          |                      |
| MW-3           | 5535.85                  | 1.0             | 5534.85                 | 5501                 | 39.35                         | 5516.50                       | 5496.50                       | 5507.85                          | 5494.85                       | 02/09/84                          |                      |
| MW-4           | 5524.30                  | 1.4             | 5522.90                 | 5499                 | 32.50                         | 5511.90                       | 5491.80                       | 5507.90                          | 5490.90                       | 02/09/84                          |                      |
| MW-5           | 5545.10                  | 1.0             | 5544.10                 | 5502                 | 51.61                         | 5513.49                       | 5493.49                       | 5509.10                          | 5494.10                       | 02/06/84                          |                      |
| MW-6           | 5551.23                  | 1.6             | 5549.63                 | DRY                  | 49.63                         | 5521.60                       | 5501.60                       | 5508.63                          | 5500.63                       | 02/07/84                          |                      |
| MW-7           | 5524.09                  | 1.1             | 5522.99                 | 5499                 | 62.11                         | 5473.98                       | 5463.98                       | 5505.99                          | 5490.99                       | 02/25/86                          |                      |
| MW-8           | 5531.12                  | 1.0             | 5530.12                 | 5501                 | 34.94                         | 5518.18                       | 5498.18                       | 5510.12                          | 5496.12                       | 02/28/86                          |                      |
| MW-9           | 5519.70                  | 1.7             | 5518.00                 | 5498                 | 33.99                         | 5507.71                       | 5487.71                       | 5503.00                          | 5489.70                       | 03/03/86                          |                      |
| RW-1           | 5525.92                  | 1.4             | 5524.52                 | 5498                 | 40.98                         | 5507.12                       | 5491.52                       | 5506.52                          | 5491.92                       | 08/31/88                          |                      |
| P-1            | 5524.62                  | 0.8             | 5523.82                 | 5498                 | 42.45                         | 5503.32                       | 5487.32                       | 5503.32                          | 5487.32                       | 08/30/88                          |                      |
| RW-2           | 5523.48                  | 0.5             | 5522.98                 | 5499                 | 38.03                         | 5506.98                       | 5491.28                       | 5507.98                          | 5490.98                       | 08/29/88                          |                      |
| P-2            | 5523.73                  | 0.8             | 5522.93                 | 5499                 | 38.33                         | 5506.33                       | 5491.03                       | 5509.93                          | 5491.43                       | 08/29/88                          |                      |
| RW-3           | 5516.86                  | 1.4             | 5515.46                 | 5497                 | 33.93                         | 5504.93                       | 5484.93                       | 5505.46                          | 5492.46                       | 03/04/86                          |                      |
| P-3            | 5507.20                  | 0.8             | 5506.40                 | 5498                 | 22.80                         | 5500.85                       | 5490.40                       | 5506.40                          | 5492.40                       | 09/01/88                          |                      |
| MW-11          | 5506.83                  | 3.6             | 5503.23                 | 5496                 | 24.73                         | 5498.23                       | 5488.23                       | 5503.23                          | 5493.23                       | 07/31/87                          |                      |
| MW-12          | 5498.36                  | 2.5             | 5495.86                 | 5488                 | 14.22                         | 5491.86                       | 5481.86                       | 5495.86                          | 5485.95                       | 08/01/87                          |                      |
| MW-13          | 5538.42                  | 3.3             | 5535.12                 | 5499                 | 53.00                         | 5509.59                       | 5493.82                       | 5508.12                          | 5490.12                       | 09/03/88                          |                      |
| RW-14          | 5533.97                  | 1.9             | 5532.07                 | 5500                 | 43.00                         | 5510.97                       | 5492.97                       | 5508.07                          | 5493.57                       | 08/06/90                          |                      |
| RW-15          | 5533.32                  | 1.7             | 5531.62                 | 5500                 | 43.40                         | 5509.92                       | 5491.92                       | 5512.62                          | 5496.62                       | 08/07/90                          |                      |
| RW-16          | 5531.99                  | 1.8             | 5530.19                 | 5500                 | 43.10                         | 5508.89                       | 5490.89                       | 5511.19                          | 5492.69                       | 08/07/90                          |                      |
| RW-17          | 5530.43                  | 1.6             | 5528.83                 | 5500                 | 41.55                         | 5508.88                       | 5490.88                       | 5503.83                          | 5493.53                       | 08/07/90                          |                      |
| RW-18          | 5527.05                  | 3.6             | 5523.45                 | 5499                 | 40.95                         | 5506.10                       | 5488.10                       | 5504.45                          | 5494.45                       | 08/08/90                          |                      |
| RW-19          | 5527.08                  | 1.5             | 5525.58                 | 5499                 | 36.70                         | 5510.38                       | 5492.38                       | 5505.58                          | 5492.58                       | 08/08/90                          |                      |
| MW-20          | 5516.44                  | 1.8             | 5514.64                 | 5499                 | 27.18                         | 5506.26                       | 5491.26                       | 5504.14                          | 5490.64                       | 09/13/91                          |                      |
| MW-21          | 5518.64                  | 1.6             | 5517.04                 | 5499                 | 30.93                         | 5504.71                       | 5489.71                       | 5505.04                          | 5492.54                       | 09/16/91                          |                      |



OIL CONSERVATION DIVISION  
RECEIVED

'90 AUG 22 AM 9 30

August 16, 1990

Mr. William C. Olson  
State of New Mexico  
Energy, Minerals, and Natural Resources Department  
Oil Conservation Division  
P.O. Box 2088  
Sante Fe, New Mexico 87504

RE: Groundwater Remediation

Dear Mr. Olson:

Please be advised that we have completed the installation of the well casings for six monitor/recovery wells as outlined in our proposal of May 8, 1990. The only significant change from the proposal was the relocation of one of the wells from the north process area to south of the process area. This was required because of safety and access restraints.

I have enclosed some well completion information and casing specifications. Each of the wells indicated some presence of free product (maybe from a sheen to a couple of inches) and are thus good candidates for expanding our recovery well system. We will be evaluating the requirements and installing utilities and pumps as promptly as possible subsequent to our evaluation.

We appreciate your participation with us in this project. We will continue to keep you informed on our future progress.

Sincerely,

Chris Hawley  
Environmental Engineer

cc: Joe Warr  
Richard Traylor  
Mike Macy



Bloomfield Refining  
Company

A Gary-Williams Energy Corporation Subsidiary

Date: August 13, 1990

Copy to:

To: File

From: Chris Hawley *CH*

Subject: INSTALLATION OF GROUNDWATER RECOVERY WELLS 14, 15, 16, 17, 18, & 19

Casing Material: Casing material for each well consisted of 4" (4.5" O.D.) fiberglass epoxy casing in two sections. The bottom section included a bottom plug, a two feet silt leg, 18 feet of recovery screen with 0.020" slots spaced for low/medium flow (1/4" between slots), 6 feet of blank, and a belled, female, threaded end. The upper section of casing included a male, threaded connection with an "O" ring. The internal fit-up was flush. This section was cut off as required.

The casing was provided by:  
Enco-EMC  
Geoff Hunkin  
9620 - A Beck Circle  
Austin, Texas 78758  
(512) 834-9900

Drilling Method: Each well was drilled with an 8" bit and followed by a driven steel casing. Only air and some water, when required, was used to clear the hole. The driven steel casing kept the hole from collapsing in the gravel zone. The hole was completed into the top section of the Nacimientto formation. The steel casing was driven to at least the top of the Nacimientto.

Casing Installation: The 4" casing was set into the hole with the entire saturated zone included in the screened section. The silt legs were set into the Nacimientto and the top of the screened section was set well above the static water level. As the steel casing was withdrawn, 10/20 sand was added until sufficiently above the screened section. The recovery well was held in place as the steel casing was removed. After the sand pack was completed, the steel casing was removed completely. 40 pounds of bentonite and 100 pounds of concrete were used to plug the annular space around the casing and then backfilled to the surface with dirt.

The drilling and casing installations were done by:

Beeman Bros. Drilling  
Leo Beeman  
31502 Hwy 160  
Durango, Colorado 81301  
(303) 259-1195

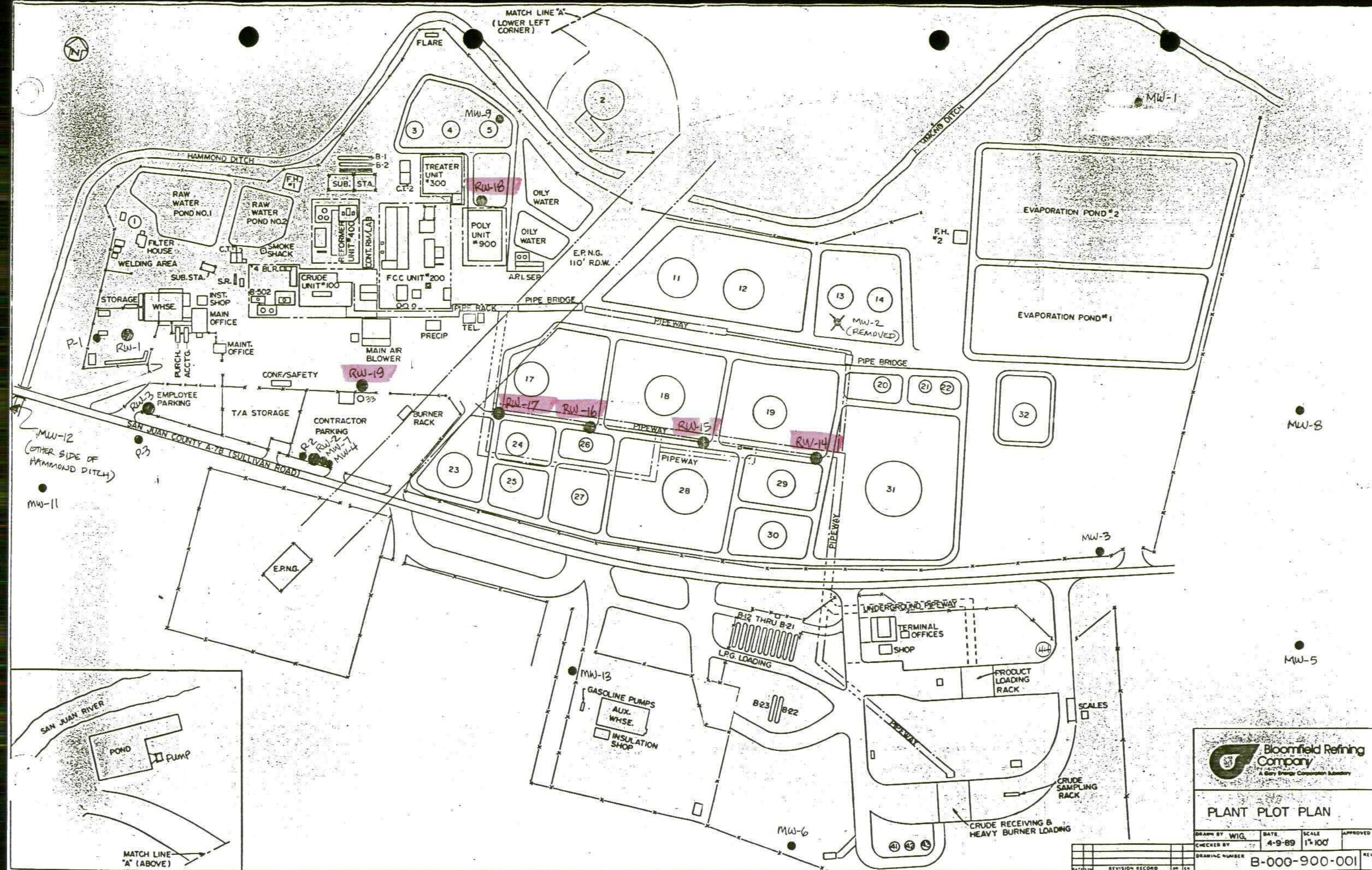
| Installation Schedule: | <u>START</u> | <u>COMPLETE</u> |
|------------------------|--------------|-----------------|
| MW-14                  | 8/6/90       | 8/6/90          |
| MW-15                  | 8/6/90       | 8/7/90          |
| MW-16                  | 8/7/90       | 8/7/90          |
| MW-17                  | 8/7/90       | 8/7/90          |
| MW-18                  | 8/8/90       | 8/8/90          |
| MW-19                  | 8/8/90       | 8/8/90          |

Measurements: Approximate measurements were made during installation and then verified by Chris Hawley on August 9, 1990 with internal measurements. Drawings were immediately prepared.

Surface Seals: Adequate surface seals will be installed at a later date after the requirements for pumping are determined.

CH/cp



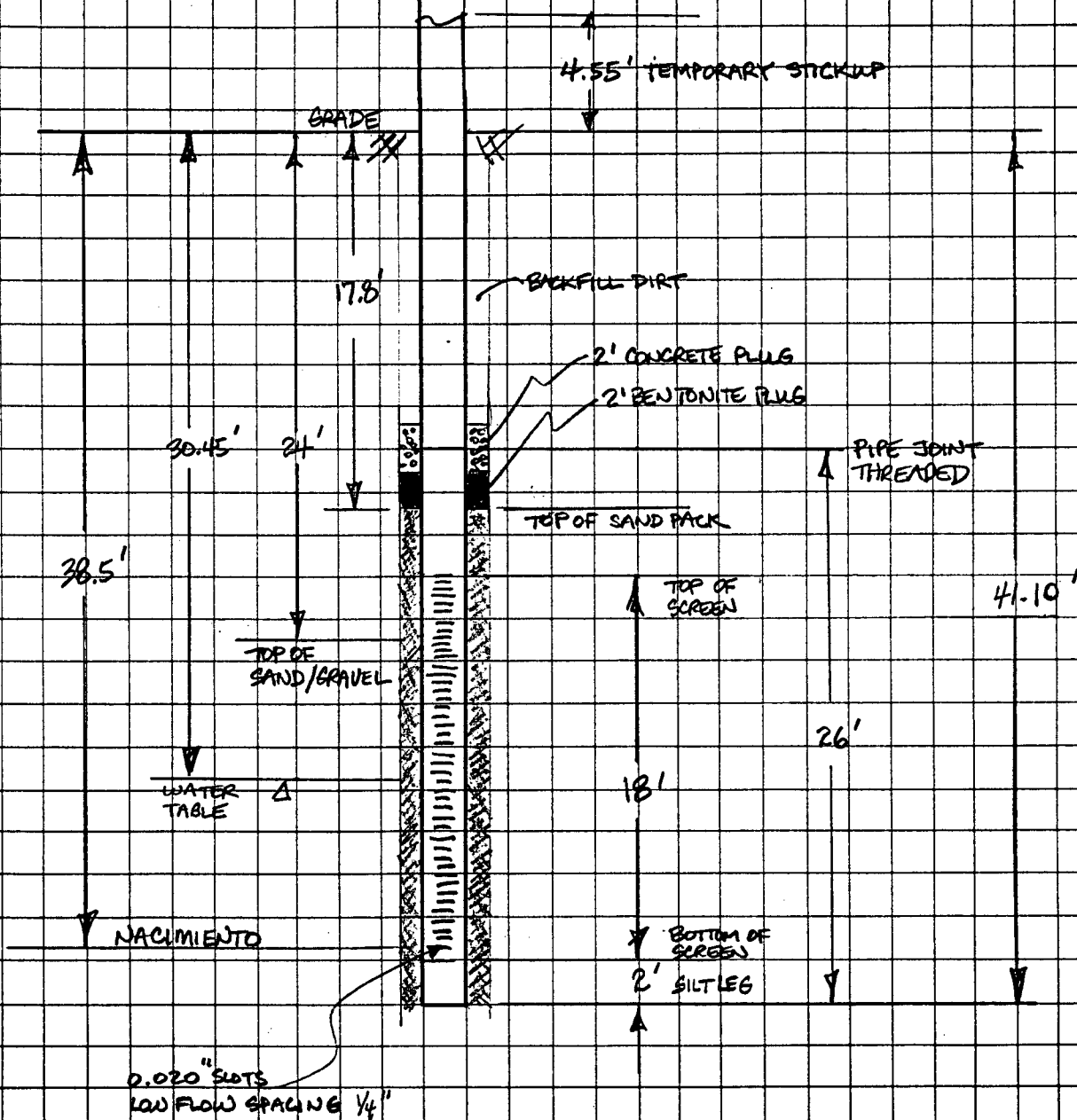




# CALCULATION SHEET

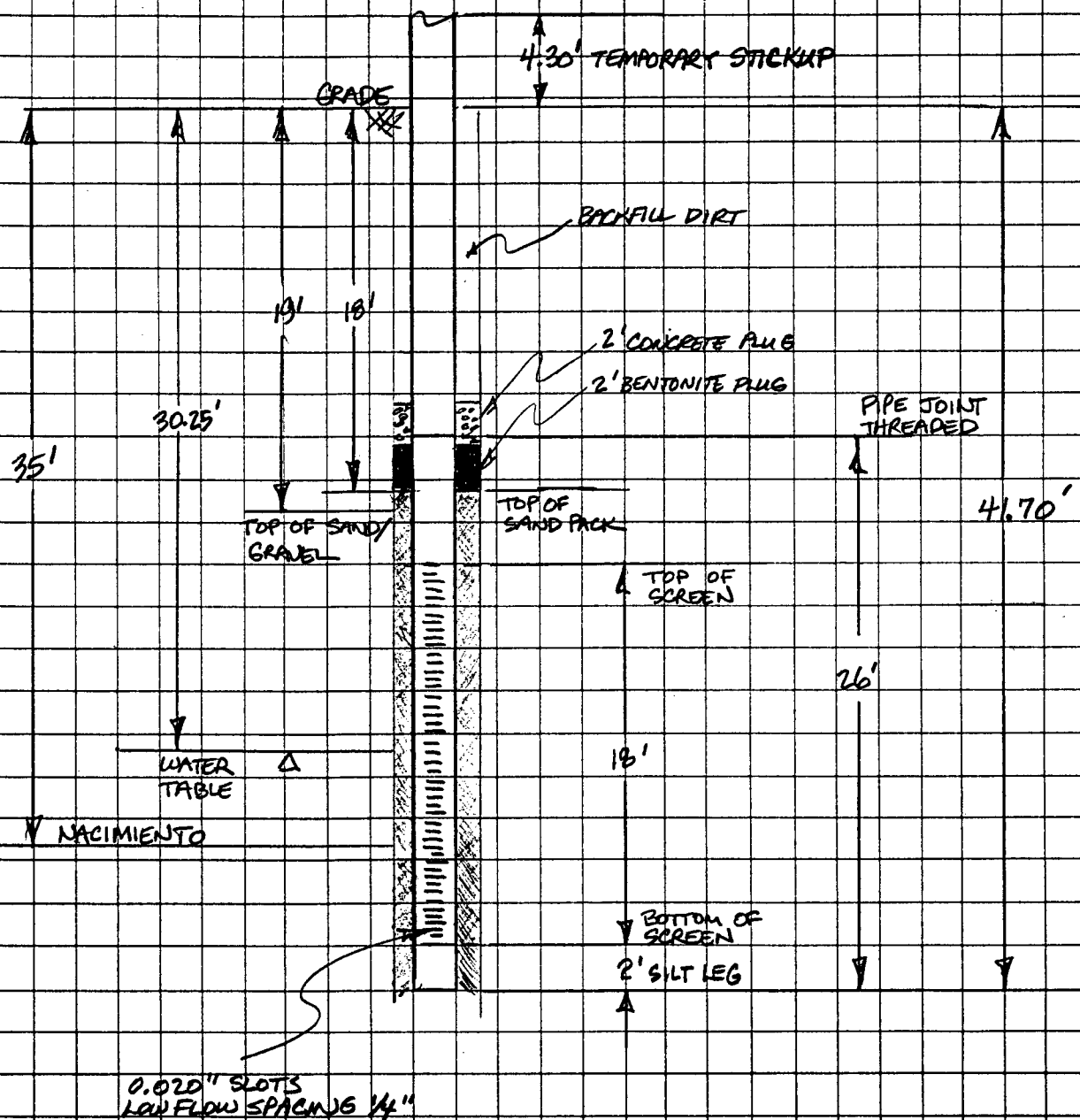
RU 14

CONSTRUCTION COMMENTS: DRILLED BY CASING DRIVER, 8" BIT; 4.5" O.D. FIBERGLASS CASING SET TO DEPTH INSIDE DRIVEN CASING, ANNULAR SPACE FILLED WITH 10/20 SAND AS DRIVEN CASING REMOVED; LOCATION: END OF ROAD BETWEEN TANKS 19 & 29. 50 LBS. OF BENTONITE DRILLING MUD & 100 LBS OF CONCRETE PLACED ON TOP OF SAND PACK, BACKFILLED WITH DIRT TO SURFACE.



INITIALS CH PROJECT No. GROUNDWATER RECOVERY - PHASE II, AFE 9146  
 DATE 8-9-90 SUBJECT RECOVERY WELL 14  
 DATE OF INSTALLATION: 8-6-90 SHEET 1 OF 6

LOCATION: ROADWAY BETWEEN TANKS 18 & 28



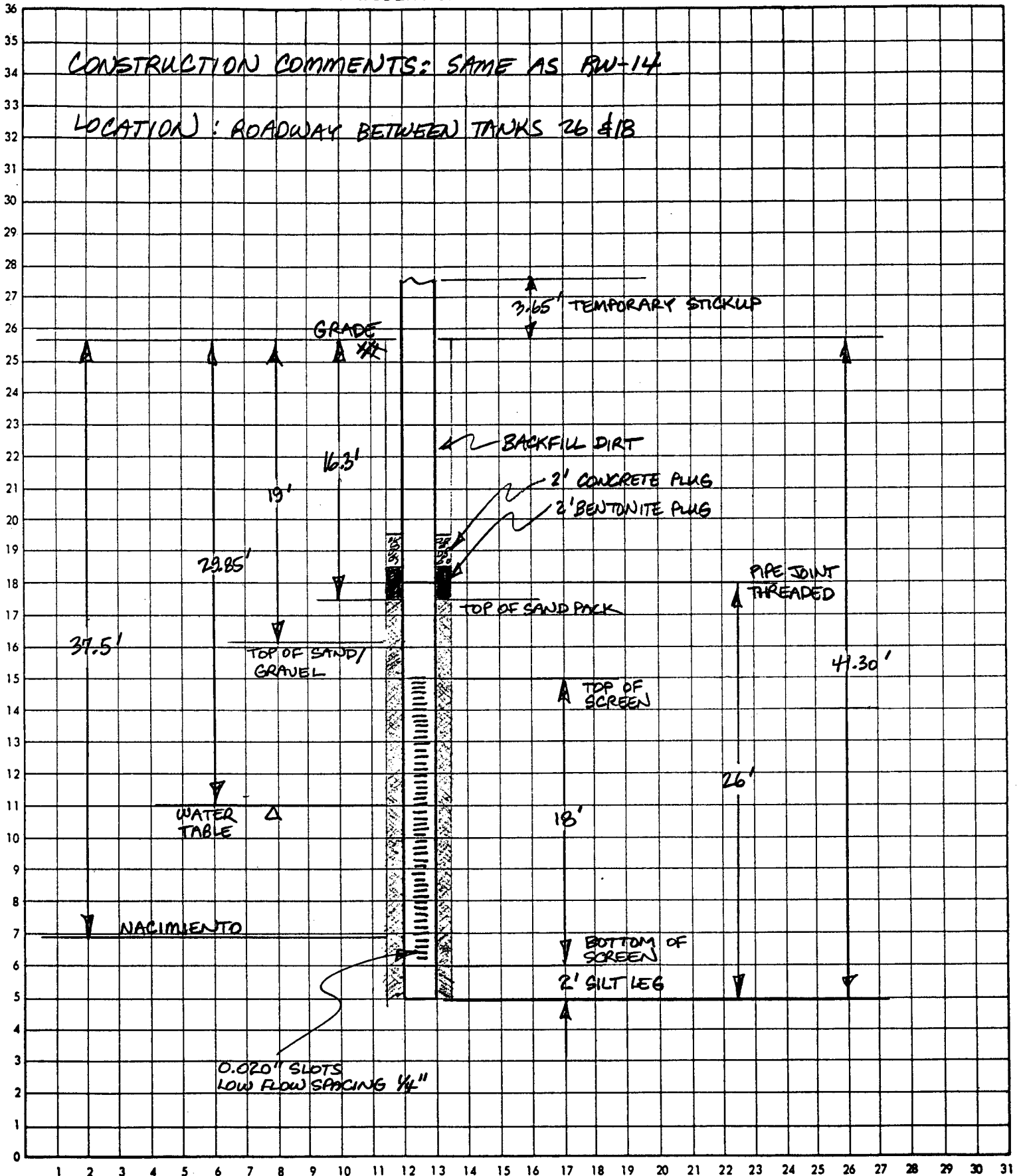
INITIALS CH PROJECT No. GROUNDWATER RECOVERY-PHASE II, AFE 9146  
DATE 8-9-90 SUBJECT RECOVERY WELL 15  
DATE OF INSTALLATION: 8-7-90 SHEET 2 OF 6

# CALCULATION SHEET

RW-16

CONSTRUCTION COMMENTS: SAME AS RW-14

LOCATION: ROADWAY BETWEEN TANKS 26 & 18



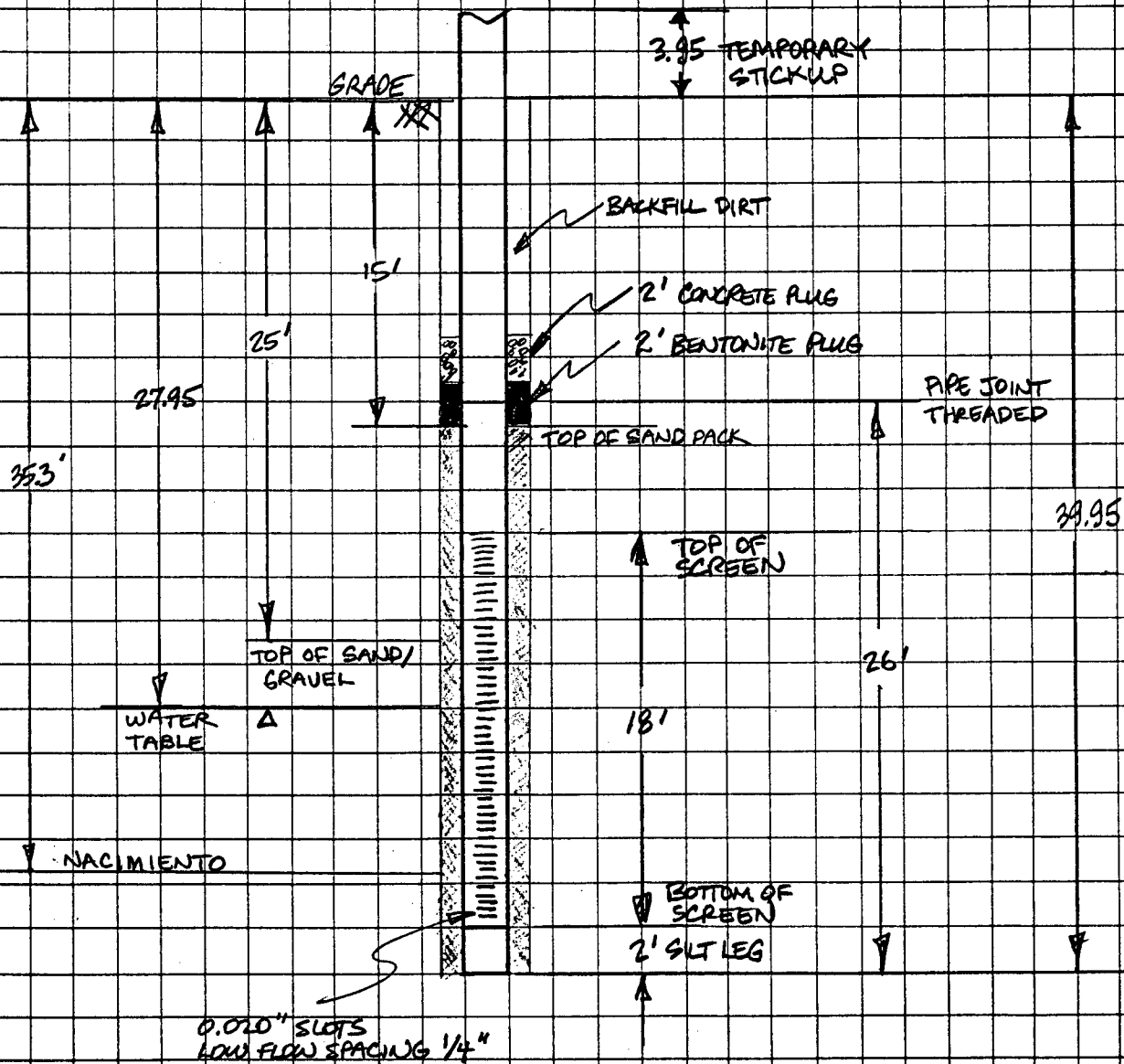
INITIALS GH PROJECT No. GROUNDWATER RECOVERY-PHASE II, AFE 9146  
 DATE 8-9-90 SUBJECT RECOVERY WELL 16  
 DATE OF INSTALLATION: 8-7-90 SHEET 3 OF 6

# CALCULATION SHEET

RW-17

CONSTRUCTION COMMENTS: SAME AS RW-14

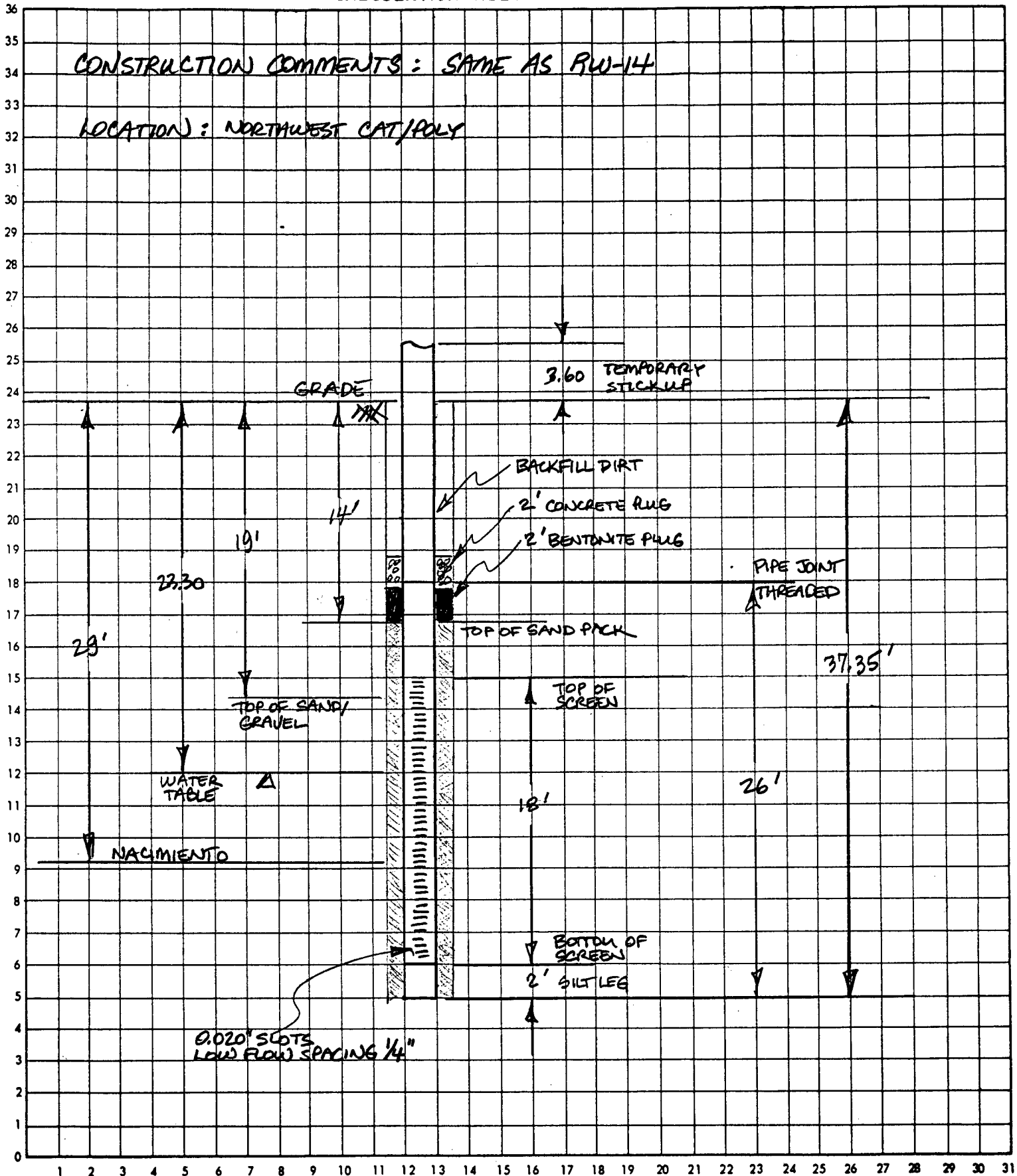
LOCATION: ROAD BETWEEN TANK 17 & 24



INITIALS CH PROJECT No. GROUNDWATER RECOVERY-PHASE II, AFE 9146  
 DATE 8-9-90 SUBJECT RECOVERY WELL 17  
 DATE OF INSTALLATION: 8-7-90 SHEET 4 OF 6

CONSTRUCTION COMMENTS: SAME AS RW-14

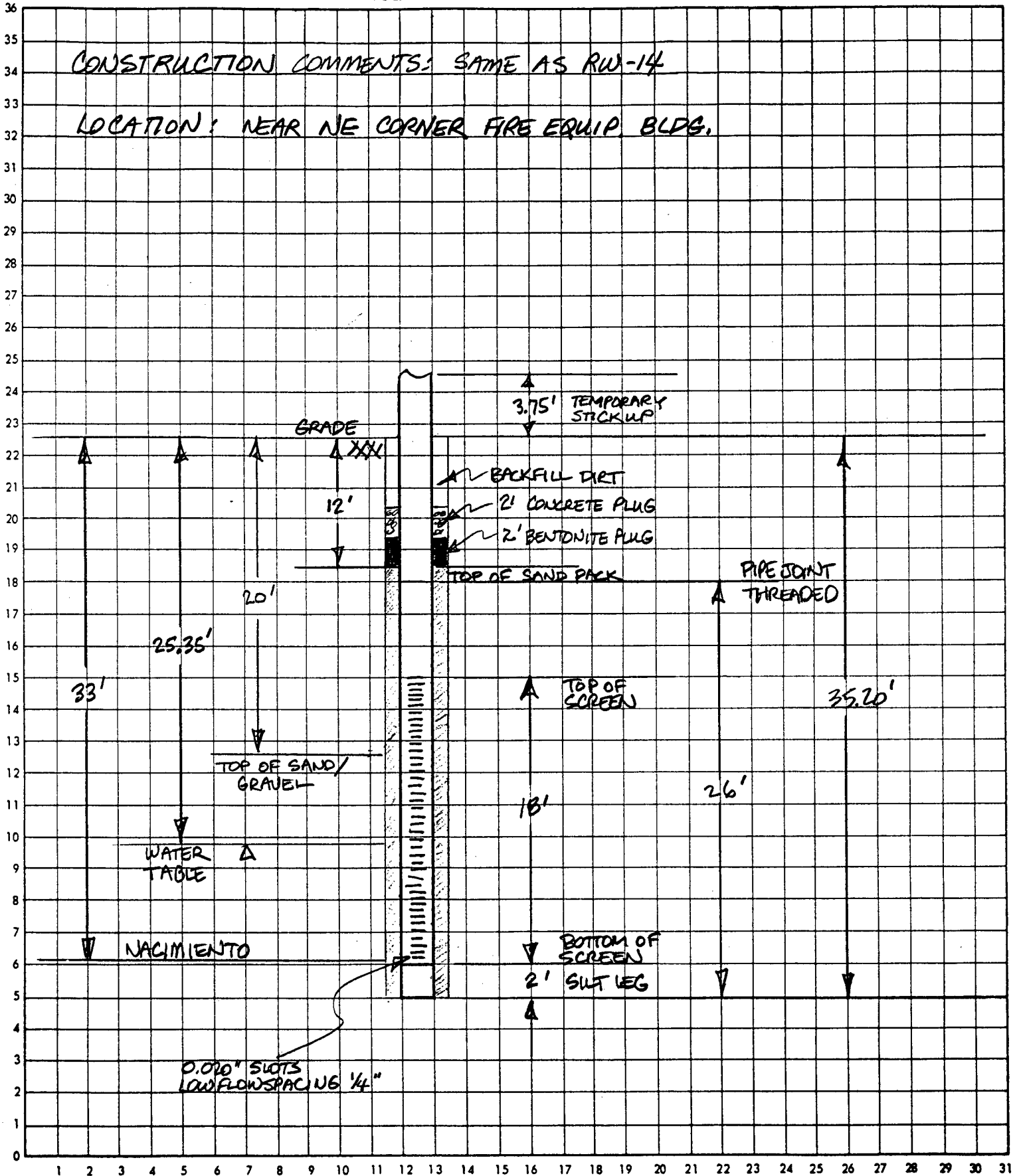
LOCATION: NORTHWEST CAT/POLY



INITIALS CH PROJECT No. GROUNDWATER RECOVERY-PHASE II, AFE 9146  
 DATE 8-9-90 SUBJECT RECOVERY WELL 18  
 DATE OF INSTALLATION: 8-8-90 SHEET 5 OF 6

CONSTRUCTION COMMENTS: SAME AS RW-14

LOCATION: NEAR NE CORNER FIRE EQUIP. BLDG.



INITIALS CH PROJECT No. GROUNDWATER RECOVERY - PHASE II, AFE 9146  
 DATE 8-9-90 SUBJECT RECOVERY WELL 19  
 DATE OF INSTALLATION: 8-8-90 SHEET 6 OF 6



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

GARREY CARRUTHERS  
GOVERNOR

July 10, 1990

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87504  
(505) 827-5800

Chris Hawley  
Bloomfield Refining Company  
P.O. Box 159  
Bloomfield, New Mexico 87413

RE: OCD WATER QUALITY SAMPLING AT THE GARY BLOOMFIELD REFINERY

Dear Mr. Hawley:

On April 9, 1990, the New Mexico Oil Conservation Division (OCD) sampled ground water from Gary Bloomfield Refinery monitor well MW-5 and the new lined pond for aromatic and halogenated volatile organics, general chemistry and metals. Enclosed you will find copies of the analytical results for the monitor well and the new lined pond. No aromatic or halogenated purgeable organics were detected in either of the samples.

If you have any questions please contact me at 827-5885.

Sincerely,

A handwritten signature in cursive script, appearing to read "William C. Olson".

William C. Olson  
Hydrogeologist

Enclosures

xc: Frank Chavez, OCD Aztec Office