SANITARY SEWER FORCE MAIN AND PUMP STATION IMPROVEMENTS

to serve

GRAY'S 5TH ADDITION

CITY OF WICHITA, KANSAS

Neil D. Cable, P.E. City Engineer

Project Number

468-83428

O.C.A. Number

743949

GENERAL NOTES:

1. Contractor will be required to provide notice to utility companies a minimum of twenty-four (24) hours prior to any excavation, as follows:

   Kansas One-Call 687-2470

   The Contractor must notify the following in case of an emergency:

Cox Communications	262-4270
Kansas Gas Service	1-888-482-4950
Westar Energy	383-8650
Aquila Energy	1-888-482-4950
Southwestern Bell	268-2245
City of Wichita Water Dept.	268-4563
City of Wichita Sewer Maint.	268-4024
City of Wichita Storm Sewer Maint.	268-4090
City of Wichita Traffic Maint.	268-4034

2. Underground utility service lines and overhead utility pole lines are to be adjusted as necessary by others prior to construction unless the plans specifically call for their adjustment by the Contractor or unless the plans specifically identify a utility to be adjusted by its owner during construction. Existing utilities and their location, as shown on the plans, represent the best information obtainable for design. The Contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.

3. Trees and shrubs in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage.

4. The Contractor shall give all property owners and/or tenants of developed property abutting the construction of this project a minimum of ten (10) days advance notice prior to start of construction.

5. The Contractor shall be responsible for preserving property irons. The Contractor will be required to re-establish any property irons which are damaged or destroyed by his construction operations. Such irons shall be reestablished by a licensed land surveyor in accordance with state laws.

6. All areas disturbed by construction operations shall by seeded with rye grass at a rate of 300 lbs/acre immediately following construction in that area. Prior to seeding, area shall be prepared per City specs.

7. The Contractor shall be responsible for coordination of gas and electrical service to be extended and connected to the pump station site as necessary.

8. The lump sum price bid for furnishing and installing pump station and miscellaneous appurtenances complete in place shall include all costs for furnishing and installing the pump station module as indicated on the site plan complete in place and in operation. Such lump sum bid shall include the cost of constructing and/or installing compacted subgrade, concrete pad, power pole, electrical conduit, electrical wiring, disconnect switch, electrical power supply, natural gas fuel supply piping, earthwork, reinforced concrete valve vault, fiberglass building, compacted fill, finished grading and any other incidentals necessary to complete the work.

9. The Contractor shall also be responsible for the activation and implementation of the pump station to full operational condition as required for acceptance by the City of Wichita.

10. The Contractor shall provide appropriate signage for the 12" force main as required by the City of Wichita. Cost of signage shall be incidental to L.F. 12" Force Main.

11. The Force Main is to be constructed of PVC Pipe C-900, Class 150, that conforms to City of Wichita Specifications and Standards. The directionally drilled portion of the project shall use Certa-Lok C900 or HDPE Pipe that also conforms to City of Wichita Specifications and Standards. Pipe is to be installed to Manufacturer's Specifications.

12. At Contractors option, Contractor may directional drill all or portions of the project other than those specifically called out to be directionally drilled. Any portions, along with those specifically called out, that are directional drilled shall be paid for as "L.F. 12" Force Main." Operating/Receiving shafts required for trenchless construction methods shall not be paid for directly, but shall be considered incidental to L.F. 12" Force Main.

13. Contractor shall be responsible for implementing erosion control methods during construction to prevent unnecessary silt/sediment discharge through downstream properties and/or storm sewer systems. Contractor shall install and maintain erosion controls as directed by the Engineer. These controls may include byt not be limited to: hay bales, silt fences, temporary mulching or other controls necessary to inhibit sedimet runoff during construction. See Details, Sheet 10.

14. All lawn/turf areas disturbed by construction shall be restored with the same grass/sod as existing. Restoration of disturbed areas shall include, but not limited to: top soil preparation, seeding, mulch, and/or reseeding. All seeding/sodding work shall be in accordance with City Standard Specifications and the City Administrative Regulations No. AR78 which governs cleanup and restoration or replacement following construction.

15. The Contractor shall reseed all areas disturbed by construction with a mixture of Rye grass (applied at a rate of 200 lbs. per acre) and Fescue grass (applied at a rate of 100 lbs. per acre). Pure Nitrogen fertilizer shall also be applied at a rate of 1.5 lbs. per thousand square feet. The seed shall be watered with deep soaking every two (2) weeks during dry periods until a mature stand of grass is obtained. The temporary seeding may be omitted only if other seeding is required in accordance with General Note 14. All costs for this work shall be included in "Project Seeding."

Benchmarks

Hoover & 47th Street South -
City of Wichita Benchmark Disc,
NE. corner of intersection,
21.60' N. of ℄ 47th St. S.
71.30' E. of ℄ Hoover
73.60' ENE. of Sec. Cor.
5.90' W. of Power Pole
Elev. = 103.06 City Datum
(1290.46 NGVD)

Hoover & MacArthur -
City of Wichita Benchmark Disc,
NE. corner of intersection,
41.60' N. of ℄ MacArthur
69.00' E. of ℄ Hoover
20.00' E. of Guy Pole
79.80' NE. of Sec. Cor.
Elev. = 121.22 City Datum
(1308.62 NGVD)

Sheet Index

Title Sheet	1
Force Main Plan/Profile	2-7
Pump Station Site Plan	8
Pump Station Details	9
Erosion Control Details	10

Vicinity Map

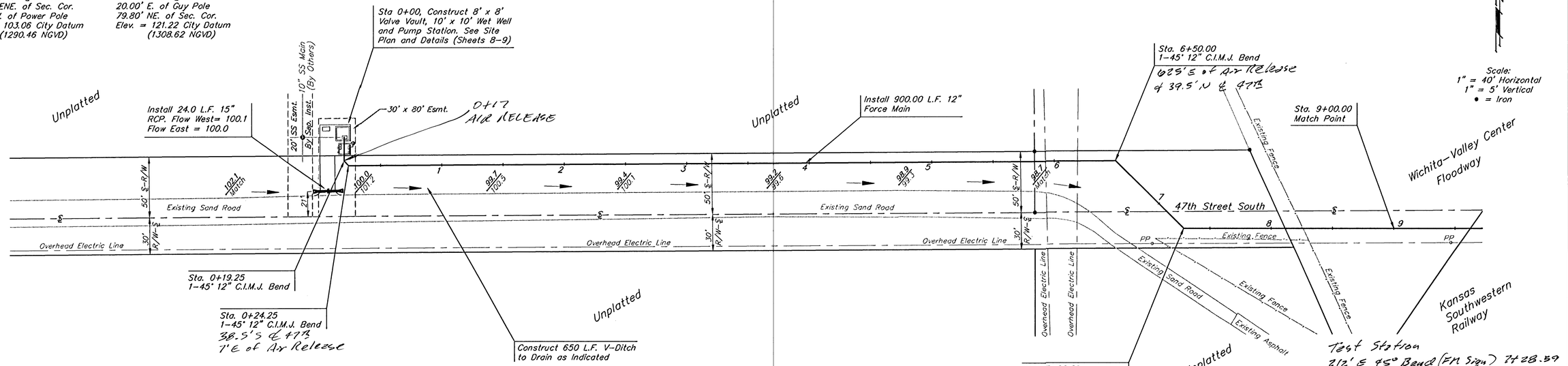
AS BUILT
5/10/04
RDL
.PDF

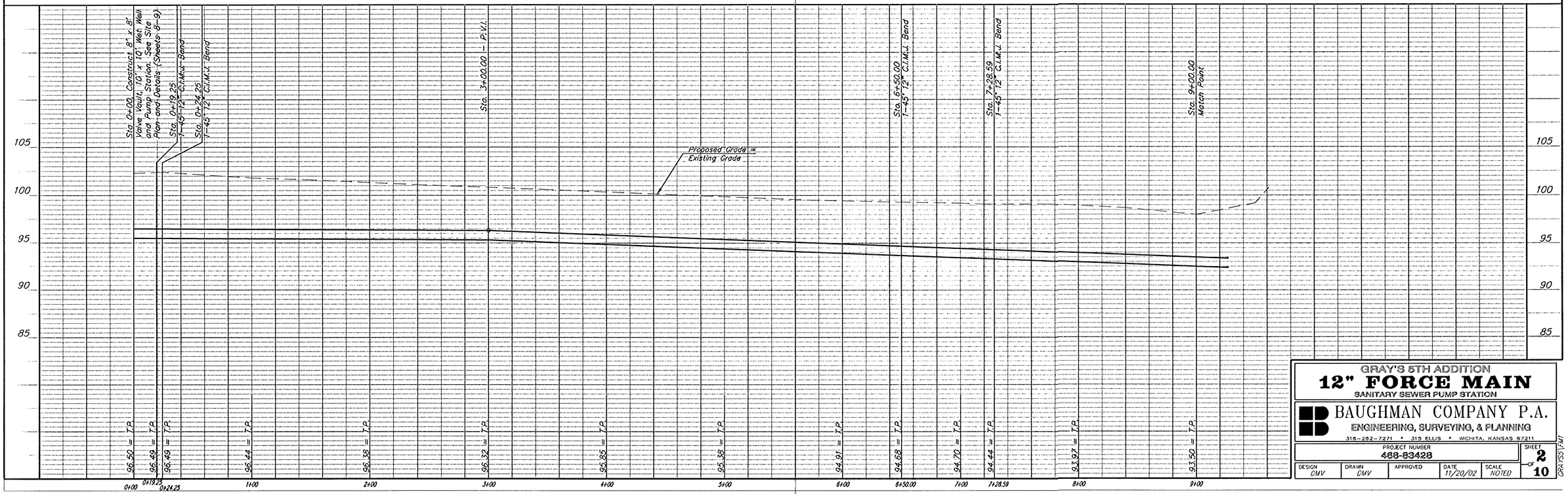
BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

BENCHMARKS:

Hoover & 47th Street South – City of Wichita Benchmark Disc, NE. corner of intersection, 21.60' N. of ℄ 47th St. S. 71.50' E. of ℄ Hoover 73.60' ENE. of Sec. Cor. 5.90' W. of Power Pole Elev. = 103.06 City Datum (1290.46 NGVD)

Hoover & MacArthur – City of Wichita Benchmark Disc, NE. corner of intersection, 41.60' N. of ℄ MacArthur 69.00' E. of ℄ Hoover 20.00' E. of Guy Pole 79.80' NE. of Sec. Cor. Elev. = 121.22 City Datum (1308.62 NGVD)





GRAY'S 5TH ADDITION

12" FORCE MAIN

SANITARY SEWER PUMP STATION

BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316–262–7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
488-83428	2 OF 10

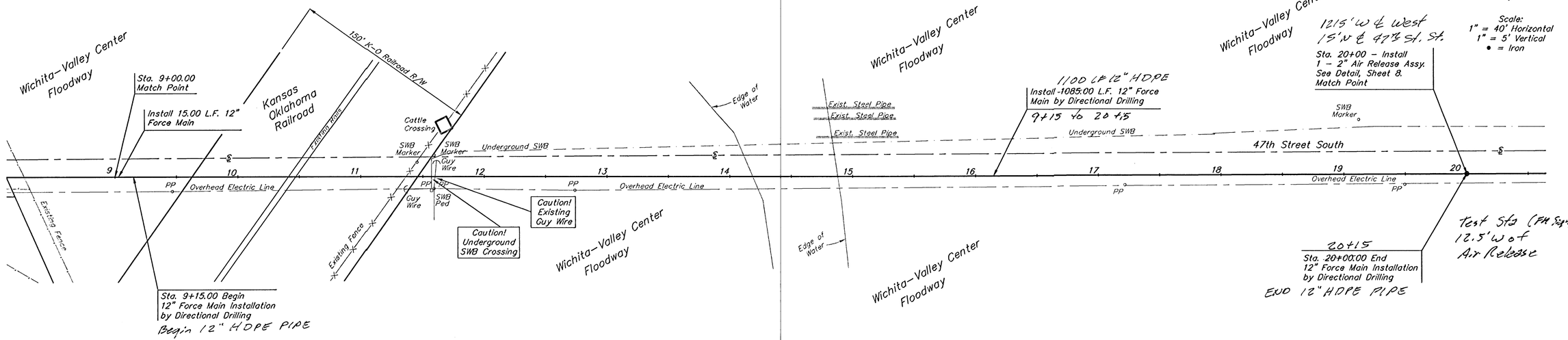
DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	DMV		11/20/02	NOTED

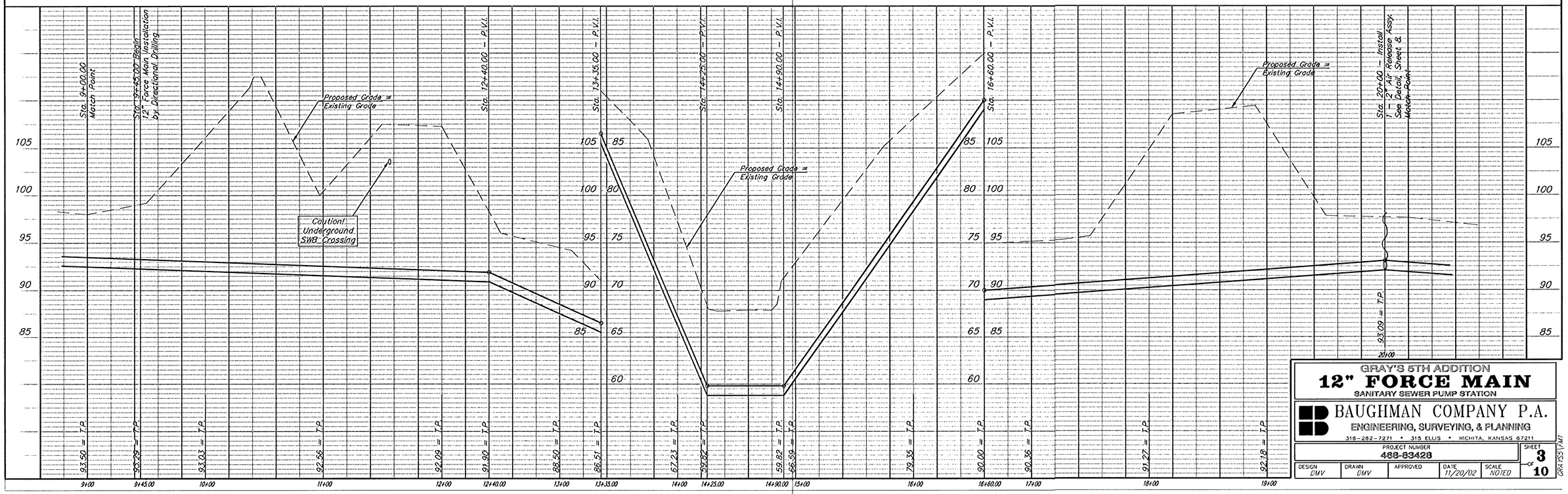
GRAY5STM1

BENCHMARKS:

Hoover & 47th Street South –
City of Wichita Benchmark Disc,
NE. corner of intersection,
21.60' N. of ℄ 47th St. S.
71.50' E. of ℄ Hoover
73.60' ENE. of Sec. Cor.
5.90' W. of Power Pole
Elev. = 103.06 City Datum
(1290.46 NGVD)

Hoover & MacArthur –
City of Wichita Benchmark Disc,
NE. corner of intersection,
41.60' N. of ℄ MacArthur
69.00' E. of ℄ Hoover
20.00' E. of Guy Pole
79.80' NE. of Sec. Cor.
Elev. = 121.22 City Datum
(1308.62 NGVD)





GRAY'S 5TH ADDITION

12" FORCE MAIN

SANITARY SEWER PUMP STATION

BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
468-83428	3 OF 10

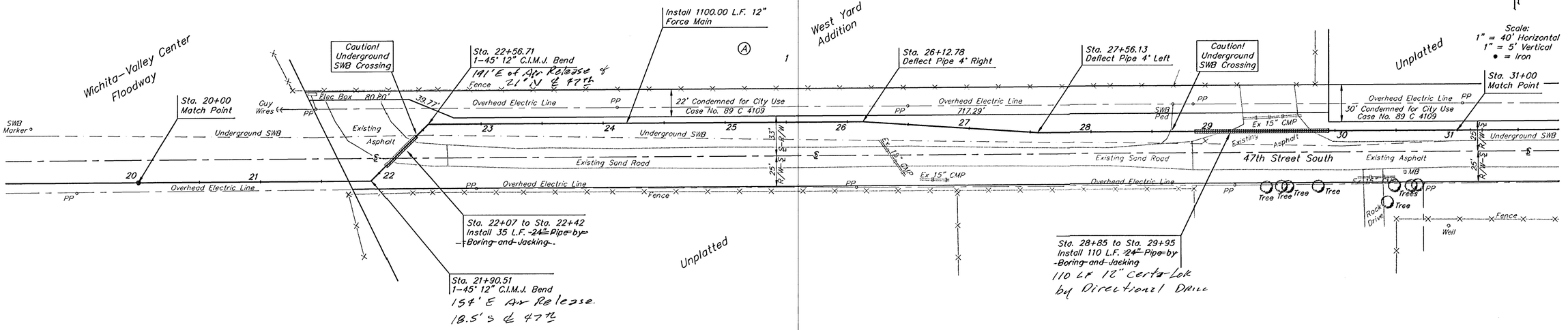
DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	DMV		11/20/02	NOTED

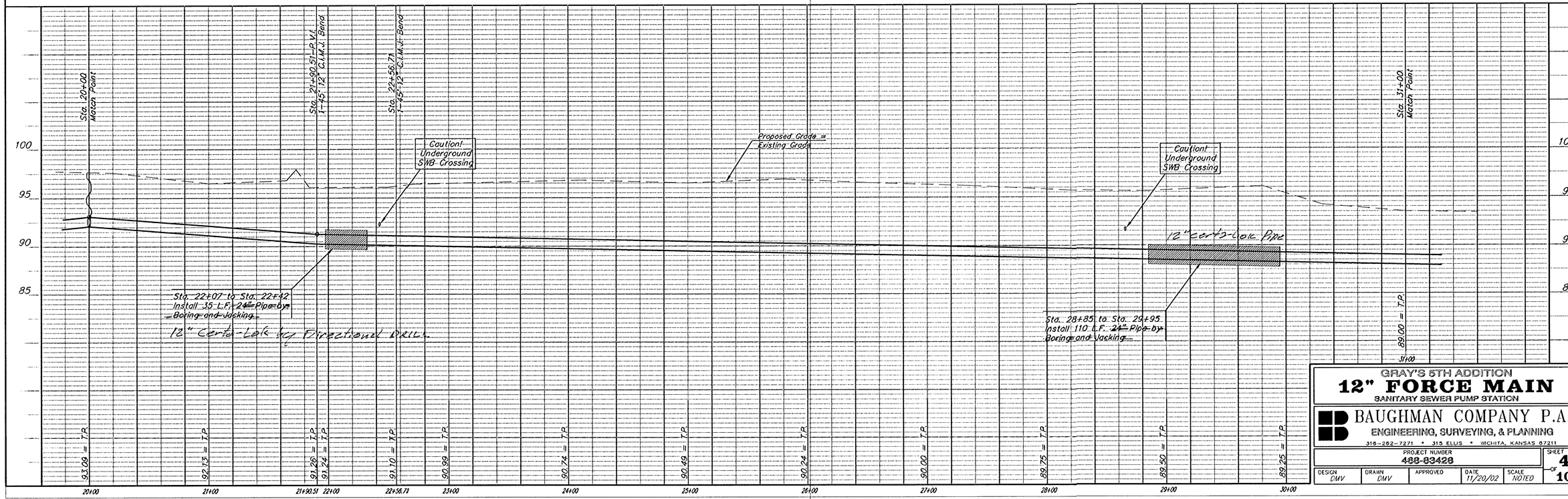
GRAYSS1.PMT

BENCHMARKS:

Hoover & 47th Street South – City of Wichita Benchmark Disc, NE. corner of intersection, 21.60' N. of ℄ 47th St. S. 71.50' E. of ℄ Hoover 73.60' ENE. of Sec. Cor. 5.90' W. of Power Pole Elev. = 103.06 City Datum (1290.46 NGVD)

Hoover & MacArthur – City of Wichita Benchmark Disc, NE. corner of intersection, 41.60' N. of ℄ MacArthur 69.00' E. of ℄ Hoover 20.00' E. of Guy Pole 79.80' NE. of Sec. Cor. Elev. = 121.22 City Datum (1308.62 NGVD)





GRAY'S 5TH ADDITION

12" FORCE MAIN

SANITARY SEWER PUMP STATION

BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
488-83428	4 OF 10

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	DMV		11/20/02	NOTED

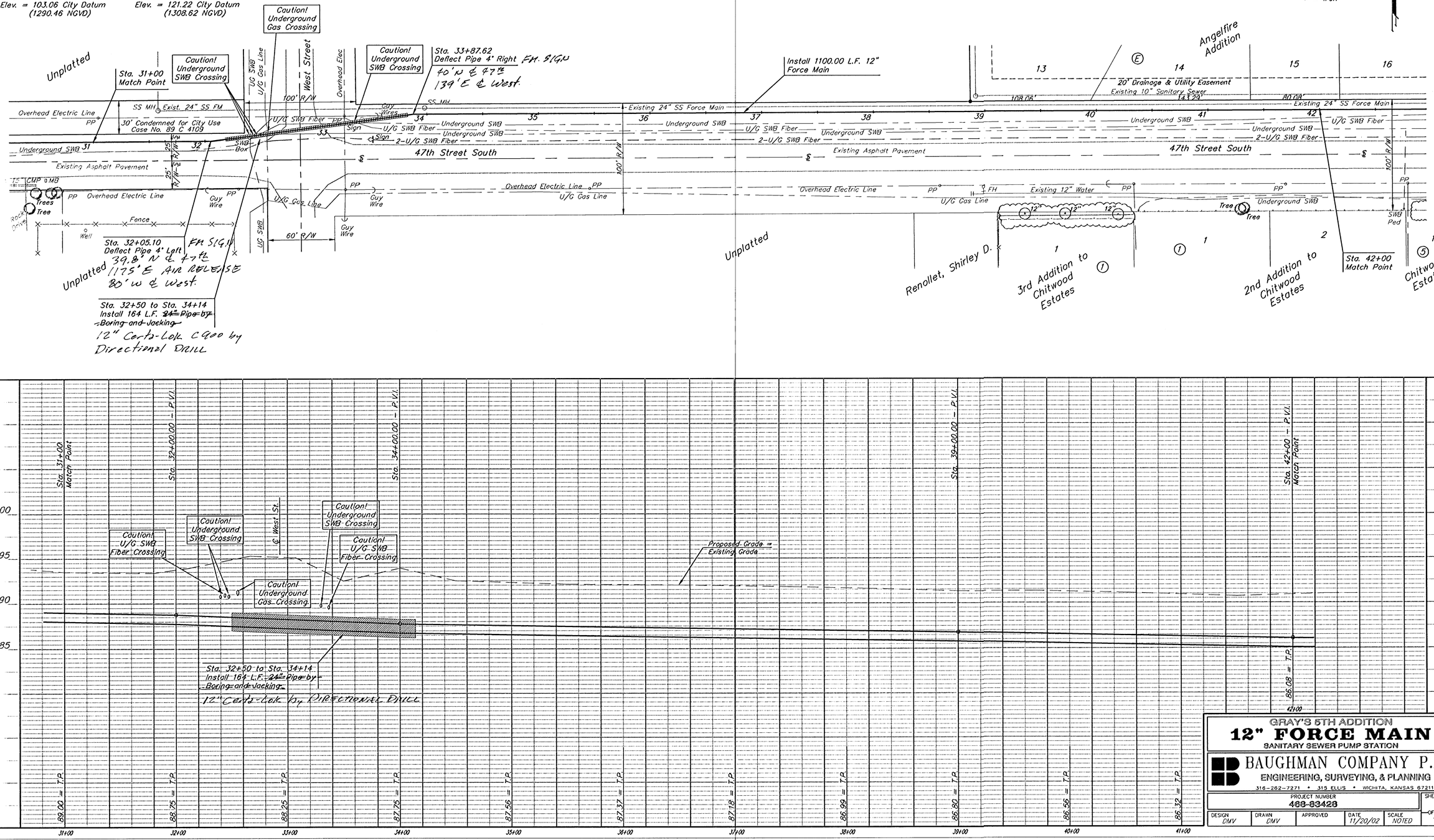
GRAYS5FM1

BENCHMARKS:

Hoover & 47th Street South –
City of Wichita Benchmark Disc,
NE. corner of intersection,
21.60' N. of ℄ 47th St. S.
71.50' E. of ℄ Hoover
73.60' ENE. of Sec. Cor.
5.90' W. of Power Pole
Elev. = 103.06 City Datum
(1290.46 NGVD)

Hoover & MacArthur –
City of Wichita Benchmark Disc,
NE. corner of intersection,
41.60' N. of ℄ MacArthur
69.00' E. of ℄ Hoover
20.00' E. of Guy Pole
79.80' NE. of Sec. Cor.
Elev. = 121.22 City Datum
(1308.62 NGVD)

Scale:
1" = 40' Horizontal
1" = 5' Vertical
• = Iron



GRAY'S 5TH ADDITION

12" FORCE MAIN

SANITARY SEWER PUMP STATION

BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER					SHEET
468-83428					5 OF 10
DESIGN	DRAWN	APPROVED	DATE	SCALE	
DMV	DMV		11/20/02	NOTED	

GRAYSS1.PMT

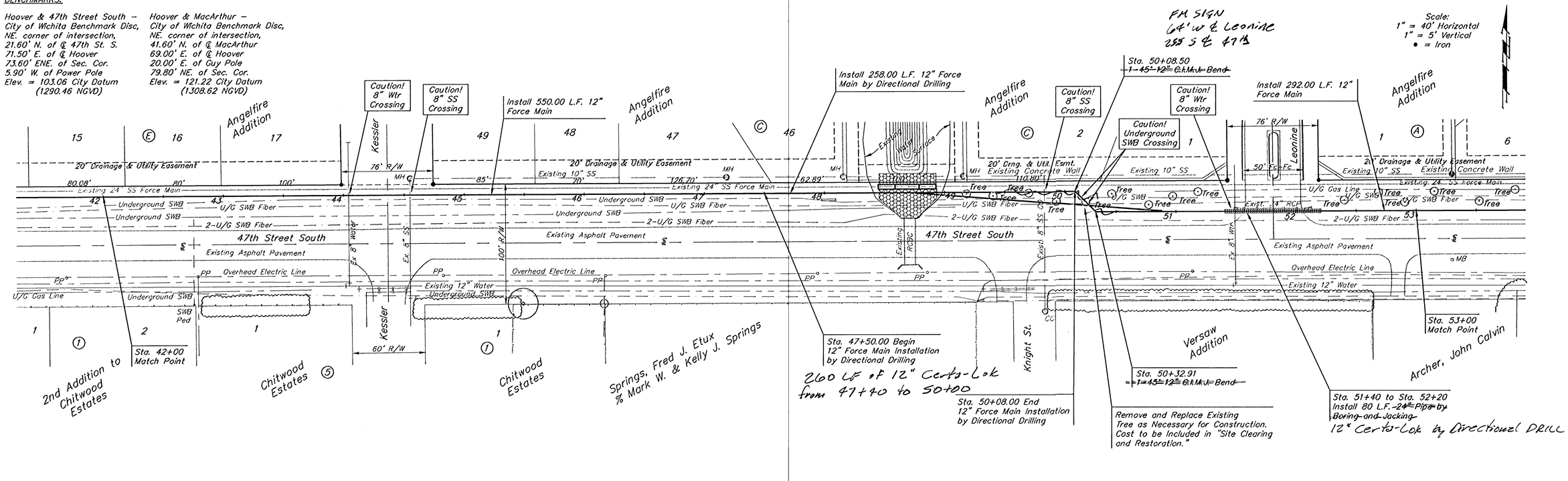
BENCHMARKS:

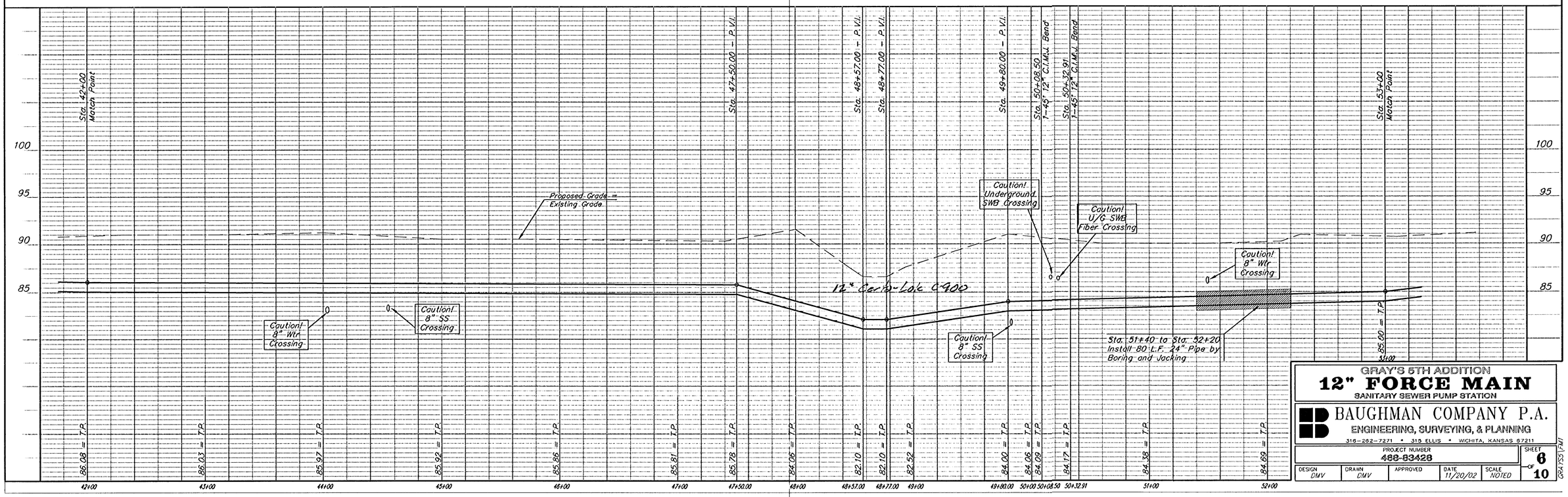
Hoover & 47th Street South – City of Wichita Benchmark Disc, NE. corner of intersection, 21.60' N. of ℄ 47th St. S. 71.50' E. of ℄ Hoover 73.60' ENE. of Sec. Cor. 5.90' W. of Power Pole Elev. = 103.06 City Datum (1290.46 NGVD)

Hoover & MacArthur – City of Wichita Benchmark Disc, NE. corner of intersection, 41.60' N. of ℄ MacArthur 69.00' E. of ℄ Hoover 20.00' E. of Guy Pole 79.80' NE. of Sec. Cor. Elev. = 121.22 City Datum (1308.62 NGVD)

PM SIGN 64'W & Leonine 255 S ℄ 47th

Scale: 1" = 40' Horizontal 1" = 5' Vertical • = Iron





GRAY'S 5TH ADDITION

12" FORCE MAIN

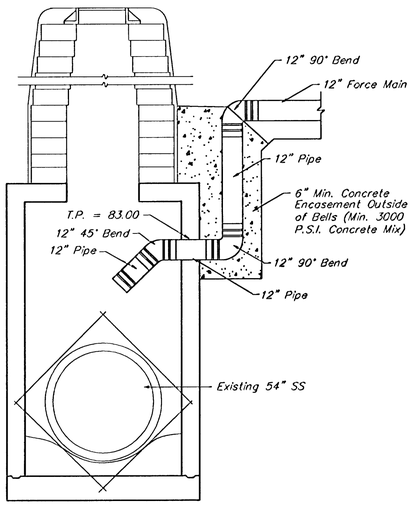
SANITARY SEWER PUMP STATION

BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
488-83428	6 OF 10

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	DMV		11/20/02	NOTED

GRAYS5TH

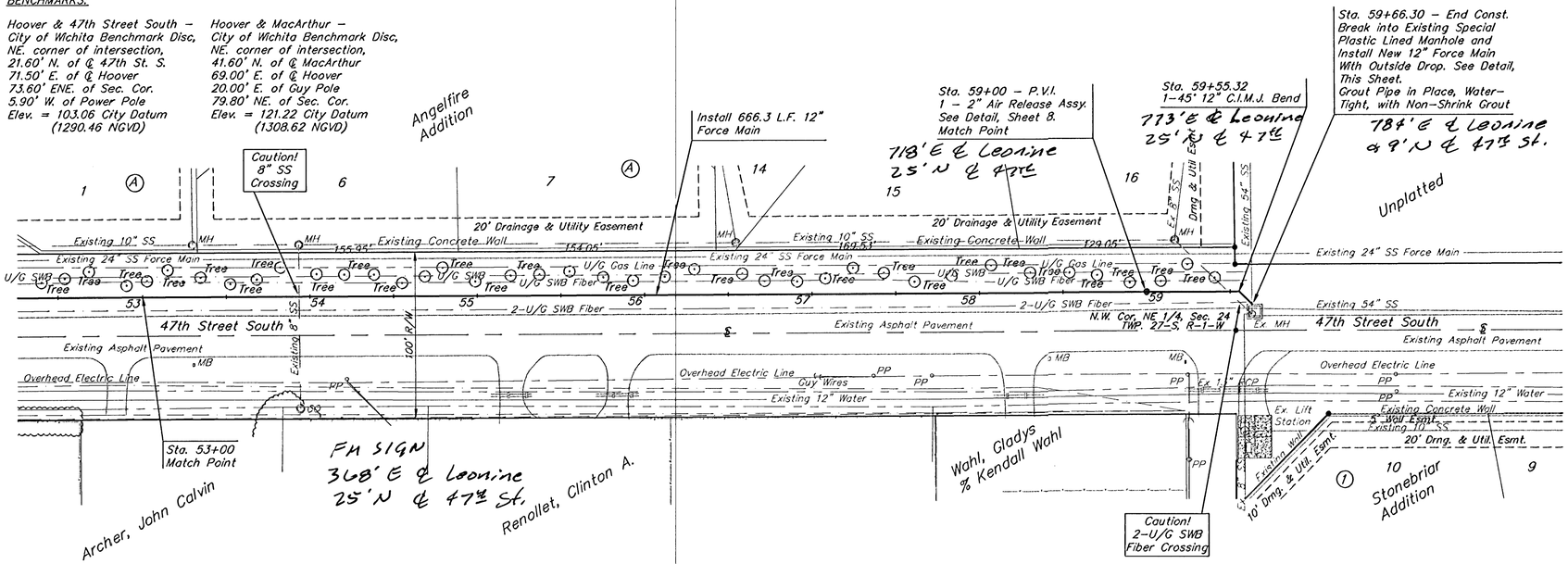


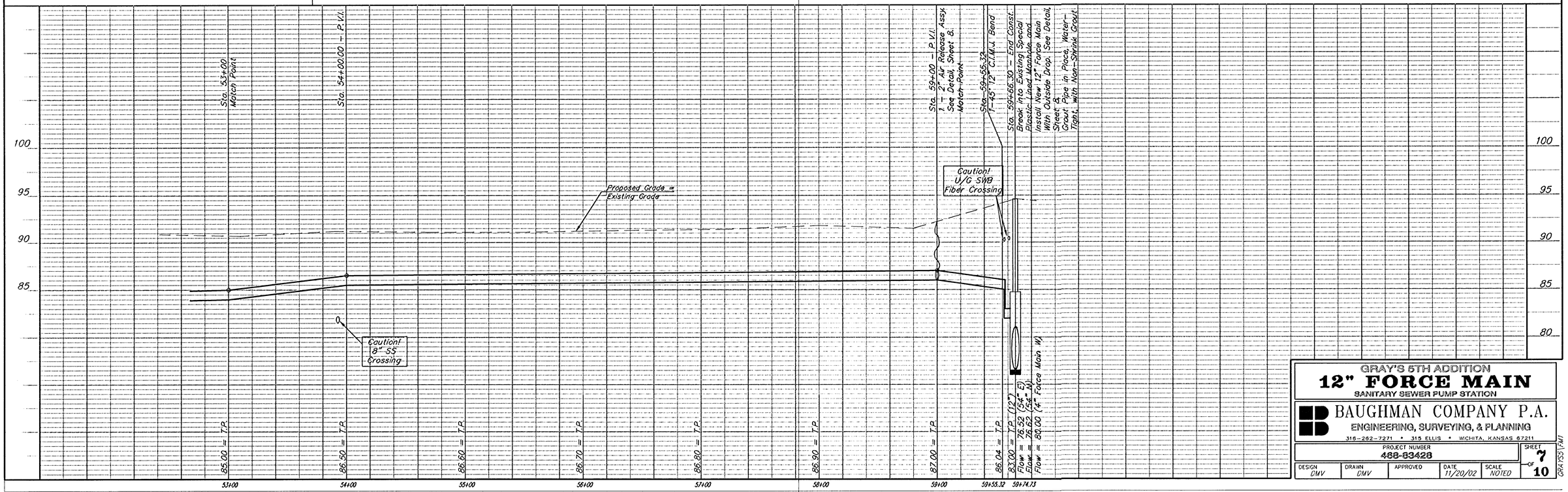
SPECIAL OUTSIDE DROP DETAIL
Sta. 59+66.30

BENCHMARKS:

Hoover & 47th Street South – City of Wichita Benchmark Disc, NE. corner of intersection, 21.60' N. of ℄ 47th St. S. 71.50' E. of ℄ Hoover 73.60' ENE. of Sec. Cor. 5.90' W. of Power Pole Elev. = 103.06 City Datum (1290.46 NGVD)

Hoover & MacArthur – City of Wichita Benchmark Disc, NE. corner of intersection, 41.60' N. of ℄ MacArthur 69.00' E. of ℄ Hoover 20.00' E. of Guy Pole 79.80' NE. of Sec. Cor. Elev. = 121.22 City Datum (1308.62 NGVD)





GRAY'S 5TH ADDITION

12" FORCE MAIN

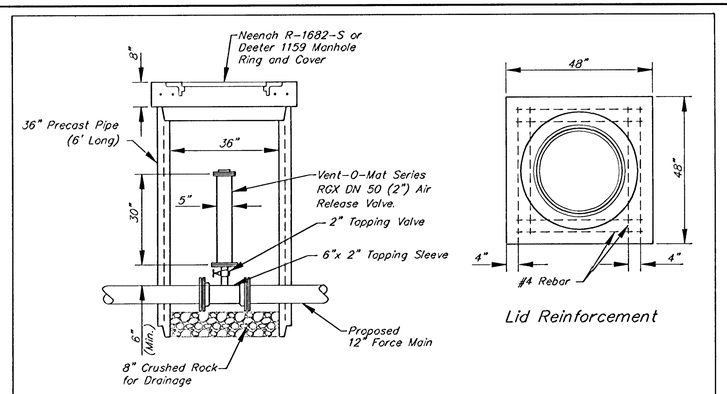
SANITARY SEWER PUMP STATION

BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
468-63428	7 OF 10

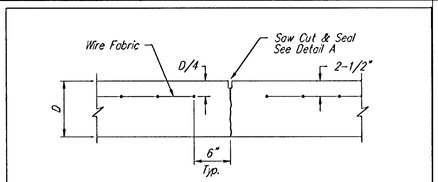
DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	DMV		11/20/02	NOTED

GRAYS5TH



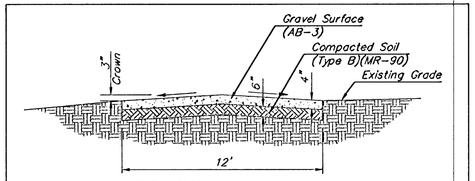
AIR RELEASE VALVE AND VAULT DETAIL

Sta. 0+17.00, Sta. 20+00.00 and Sta. 59+00.00



CONTRACTION JOINT DETAIL (C.J.)

No Scale



ACCESS ROAD DETAIL

No Scale

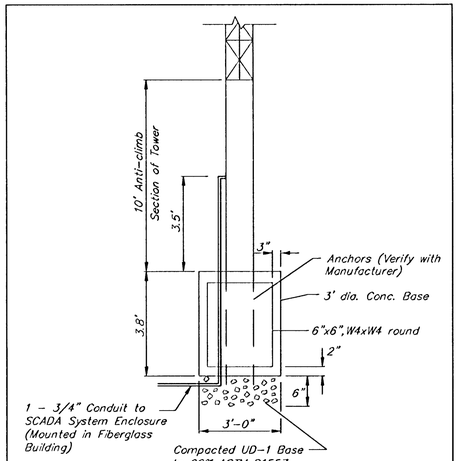
Notes:

The Price Bid for Furnishing and Installing the Wet Well Mounted Lift Station With Standby Emergency Power and Miscellaneous Appurtenances Complete in Place Shall Include All Costs for Furnishing and Installing the Lift Station as Indicated Complete in Place and in Operation. This Price Shall Include the Cost of Constructing and/or Installing Compacted Subgrade, Concrete Pad, Power Pole, Electrical Conduit, Electrical Wiring, Disconnect Switch, Primary and Secondary Electrical Power Supply, Natural Gas Fuel Supply, Reinforced Concrete Valve Vault, Fiberglass Building, Finished Grading, and any Other Incidentals Necessary to Complete the Work.

The Contractor Shall be Responsible for Arrangements with the Gas Company for Extension of Gas Service to the Lift Station Site and For Payment of Costs of such Extension and Meter Setting. Location of Meter to be Acceptable to Gas Service Company and to City of Wichita Sewer Maintenance Department.

The Contractor Shall Coordinate with KGE/Electric Company to Extend 3Ø Electrical Service to the Lift Station Site. Cost of 3Ø Electrical Service Shall be Borne by the Owner.

Generator set shall be radiator cooled, natural gas fueled, 277/480 three phase, 60 HZ, 1800 RPM, with the following options:
Unit mounted circuit breaker, 80°C main alternator (IMS), PMG voltage regulator, detector 12 controls (NFPA 110), alarm contacts, AC meter package, electronic engine governor, 122°F high ambient cooling system, engine coolant heater, oil and coolant drain extensions, weather protective enclosure, unit mounted exhaust silencer (mounted within enclosure).
Provide one Cummins/Onan 01PC Automatic transfer switch, 150 amp, 277/480 three phase, 3 pole, 60 HZ, with the following options:
NEMA 3R cabinet, programmed transition, level II controls, bargraph meters, digital display, keyed security switch, dry contacts for customer alarm points, 2-amp float type battery charger.
Provide one Cummins/Onan 5 year/1500 hour stand-by, parts and labor, extended warranty coverage, program #L031.
Note: Supplier shall provide unit start-up and customer instructions.

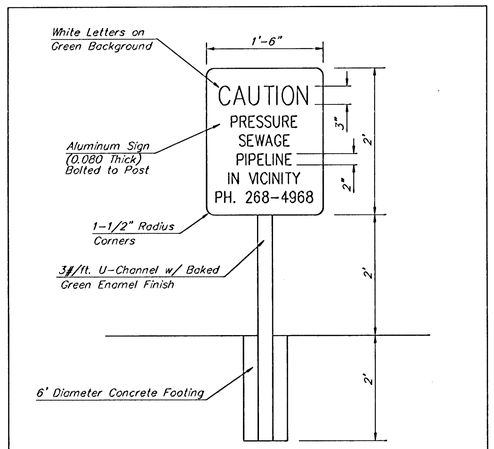


SCADA SYSTEM DETAIL

Notes:
1. Maximum tower height is 30 feet.
2. 6" copper ground rod shall be provided for the tower.
3. Anchor bolt sizes and lengths shall be per the tower manufacturers recommendations.
4. Contact Mike Hughes with the City of Wichita Water & Sewer Department at 269-4764 prior to SCADA connection.

Pump Station Information

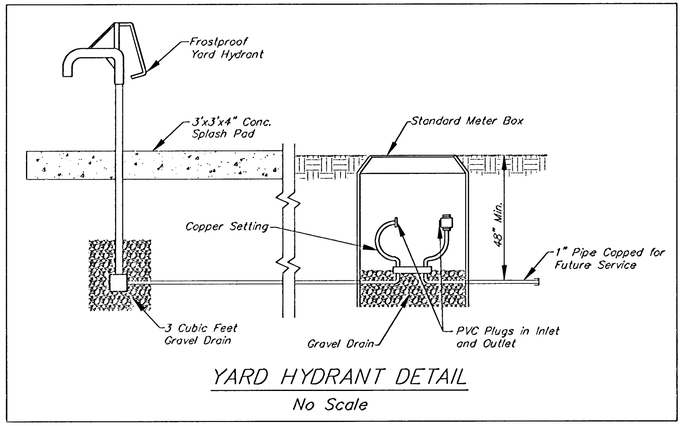
	Pump	Flow	TDH	Motor HP	Impeller Code	RPM	Elec. Serv. Req.
No. 1	C-3140	900 gpm	23.5'	14	612 LT	1150	460V, 3 Phase
No. 2	C-3140	900 gpm	23.5'	14	612 LT	1150	460V, 3 Phase



METAL WARNING SIGN DETAIL

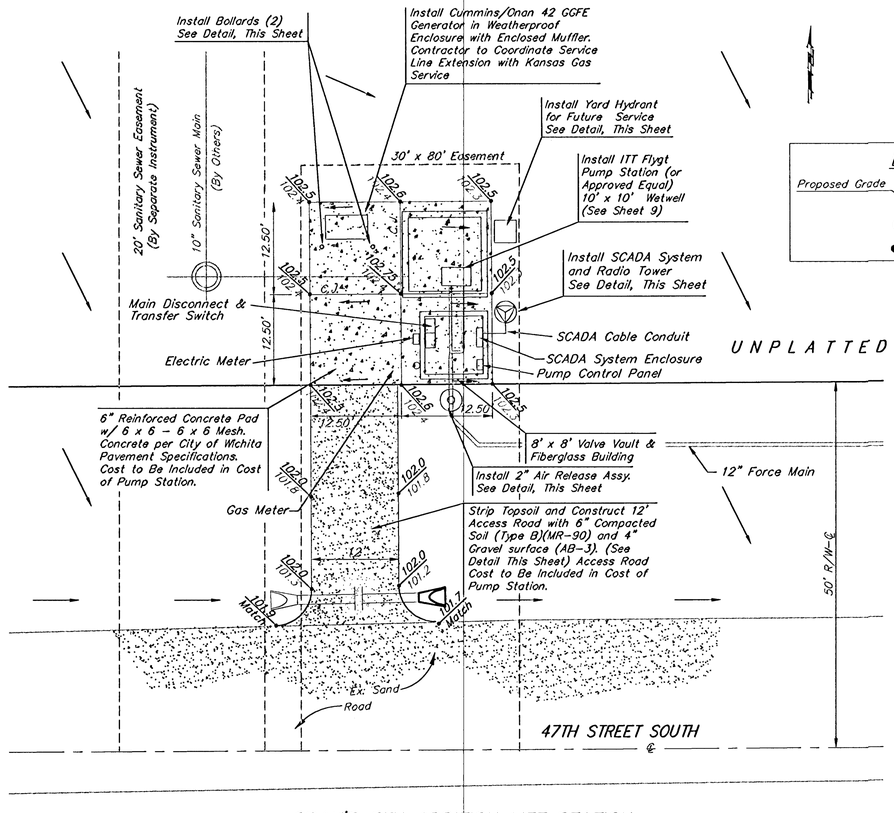
No Scale

Note: Install Metal Warning Signs at Locations as Shown on the Plans. Exact Location of Warning Signs shall be as Approved by the Engineer. Cost of Warning Signs shall be Incidental to L.F. "12" Sanitary Sewer Force Main".



YARD HYDRANT DETAIL

No Scale

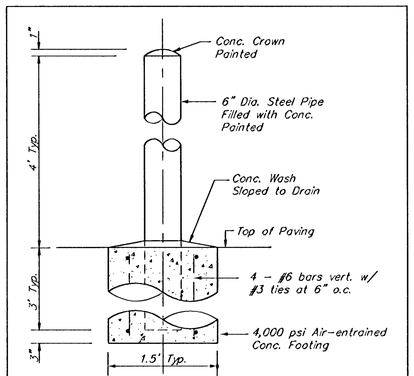


GRAY'S 5TH ADDITION LIFT STATION

Scale: 1" = 10'

Legend

Proposed Grade 90.45 90.2 Existing Grade



TYP. PIPE BOLLARD DETAIL

NOT TO SCALE

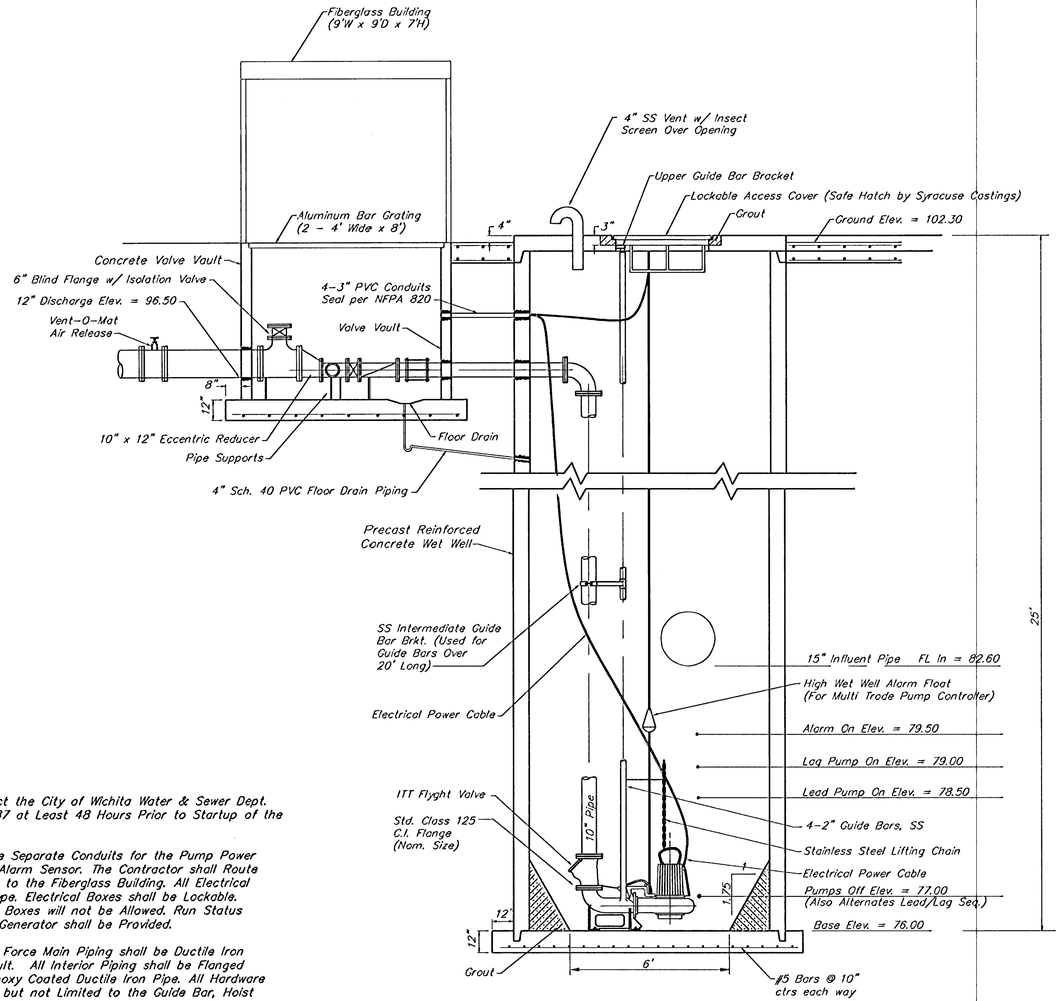
GRAY'S 5TH ADDITION
SITE PLAN
SANITARY SEWER PUMP STATION

BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
468-83428	8 OF 10

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	DMV		11/20/02	NOTED

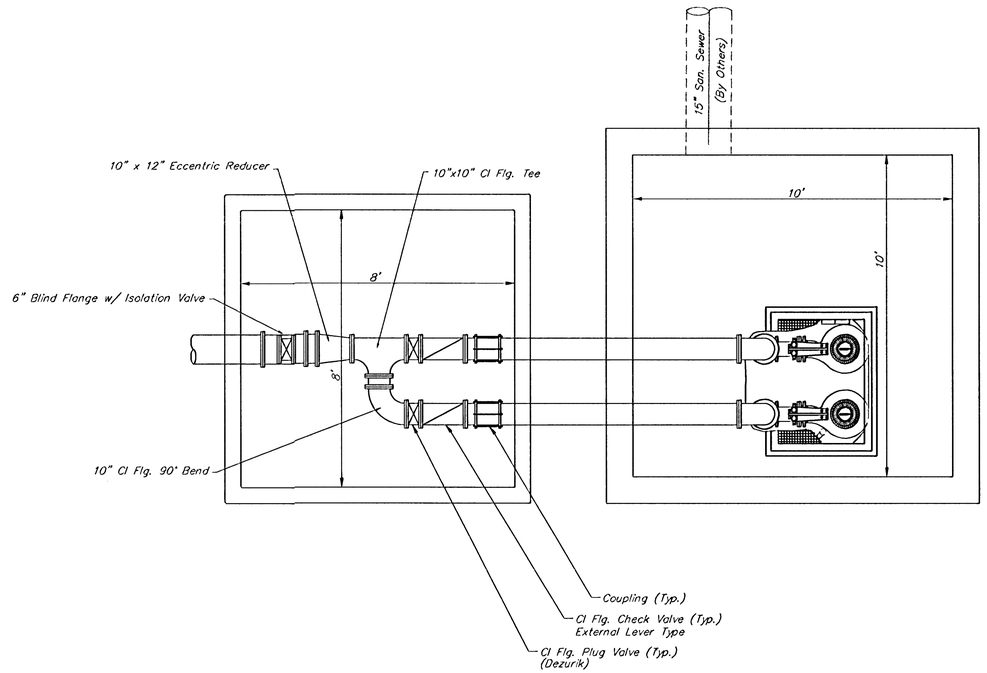
gray5/sitplan



WET WELL DETAIL

No Scale

*Minimum Liquid Level Must Not Fall Below Top of Volute



Notes:

The Contractor shall Contact the City of Wichita Water & Sewer Dept. (Tim Hopwood) at 303-8787 at Least 48 Hours Prior to Startup of the Pump Station.

The Contractor shall Provide Separate Conduits for the Pump Power Cables and the High Level Alarm Sensor. The Contractor shall Route Conduits from the Wet Well to the Fiberglass Building. All Electrical Conduits shall be Robroy type. Electrical Boxes shall be Lockable. PVC or Fiberglass Electrical Boxes will not be Allowed. Run Status Relays for the Pumps and Generator shall be Provided.

Unless Otherwise Noted, all Force Main Piping shall be Ductile Iron to 5' Outside the Valve Vault. All Interior Piping shall be Flanged Joint, Cement Lined and Epoxy Coated Ductile Iron Pipe. All Hardware Inside the Wetwell Including but not Limited to the Guide Bar, Hoist Chain, etc. shall be Stainless Steel.

The Fiberglass Building shall be Installed over the Valve Vault with the Entry Door Opening Towards the Wet Well. All Alarm Equipment and Controls shall be Mounted Inside the Building. A GFI Receptacle (120V, 20 Amp Duplex), 2-150W Incandescent Light Fixtures with Switch, and an Exhaust Fan shall be Supplied and Installed in the Fiberglass Building. Fiberglass Building shall have Exterior Yard Light on Wet Well Side of Building.

Contractor shall Support all Piping Inside the Wet Well and Valve Vault as Required.

Pipe Penetrations Thru the Wet Well, Valve Vault and Concrete Pad Shall be Grouted with Non Shrink Grout Watertight with Water Stop Gaskets as Required.

Wet Well and Valve Vault Design shall be Subject to the Same Design Requirements as Precast Manholes.

The Interior of the Wetwell is to be Lined with a Plastic Liner to be Either Amer-Plate T-Lock Liner Plate, B.F. Goodrich Lok-Rib Koroseal, or an Approved Equal.

GRAY'S 5TH ADDITION

PUMP STATION DETAILS

SANITARY SEWER PUMP STATION

BAUGHMAN COMPANY P.A.

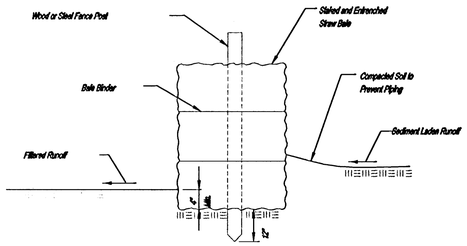
ENGINEERING, SURVEYING, & PLANNING

316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
468-83428	9 OF 10

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	DMV		11/20/02	NONE

grays/pumpdet



STRAW BALE BARRIERS

Material Specifications:

Bale slope barriers may be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture.
The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.

Placement:

A slope barrier should be used at the toe of a slope when a ditch does not exist. The slope barrier should be placed on nearly level ground 5' to 10' away from the toe of a slope. The barrier is placed away from the toe of the slope to provide adequate storage for settling out sediment.
When practicable, bale slope barriers should be placed along contours to avoid a concentration of flow.
Bale slope barriers can also be placed along right-of-way fence lines to keep sediment from crossing onto adjacent property. When placed in this manner, the slope barrier will not likely follow contours.

Proper installation method:

Excavate a trench the length of the planned slope barrier that is 4" deep and a bale's width wide. Make sure that the trench is excavated along a single contour. When practicable, slope barriers should be placed along contours to avoid a concentration of flow. Place the soil on the upslope side of the trench for later use.
Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground.
Once all the bales have been installed and anchored, place the excavated soil against the upslope side of the check and compact it. The compacted soil should be no more than 3" to 4" deep.

List of common placement/installation mistakes to avoid:

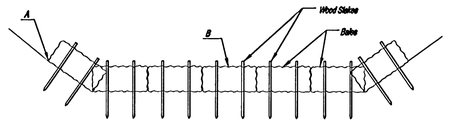
When practicable, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the barrier fails.
Do not place bale slope barriers in areas with shallow soils underlain by rock. If the barrier is not anchored sufficiently, it will wash out.
Bale slope barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under the barrier.

Inspection and Maintenance:

Bale slope barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Are there any points along the slope barrier where water is concentrating?
Does water flow under the slope barrier?
Does water flow through spaces between abutting bales?
Are any bales dislodged?
Are bales decomposing due to age and/or water damage?
Does sediment need to be removed from behind the slope barrier?

NOTE: Point A must be higher than Point B so that water flows over the bales and not around them.



STRAW BALE DITCH CHECKS

Material Specifications:

Bale ditch checks may be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture.
The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Optional: The downstream scour apron should be constructed of a double-netted straw erosion-control blanket at least 6' wide.
Optional: The metal landscape staples used to anchor the erosion-control blanket should be at least 8" long.

Placement:

Bale ditch checks should be placed perpendicular to the flowline of the ditch.
The ditch check should extend far enough so that the ground level at the ends of the check is higher than the top of the lowest center bale. This prevents water from flowing around the check.
Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead.
Bales should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.
The following table provides check spacing for a given ditch grade:

Ditch grade (%)	Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

Proper installation method:

Excavate a trench perpendicular to the ditch flowline that is 4" deep and a bale's width wide. Extend the trench in a straight line along the entire length of the proposed ditch check. Place the soil on the upstream side of the trench-it will be used later.
Optional: On the downstream side of the trench, roll out a length of erosion-control blanket (scour apron) equal to the length of the trench. Place the upstream edge of the erosion-control blanket along the bottom upstream edge of the trench. The erosion control blanket should be anchored in the trench with one row of 8" landscape staples placed on 18" centers. The remainder of the erosion-control blanket (the portion that is not lying in the trench) will serve as the downstream scour apron. This section of the blanket should be anchored to the ground with 8" landscape staples placed around the perimeter of the blanket on 18" centers. The remainder of the blanket should be anchored using two evenly spaced rows of 8" landscape staples on 18" centers placed perpendicular to the flowline of the ditch.
Place the bales in the trench, making sure that they are butted tightly. Two stakes should be drives through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground.
Once all the bales have been installed and anchored, place the excavated soil against the upstream side of the check and compact it. The compacted soil should be no more than 3" to 4" deep and extend upstream no more than 24".

List of common placement/installation mistakes to avoid:

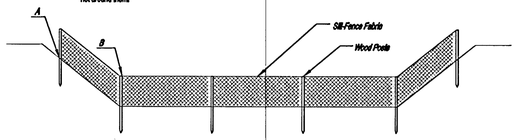
Do not place a bale ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.
Do not place bale ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow.
Follow prescribed ditch-check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks.
Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the check is higher than the top of the lowest center bale.
Do not place bale ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.
Bale ditch checks must be dug into the ground. Bales at ground level do not work because they allow water to flow under the check.

Inspection and Maintenance:

Bale ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Does water flow around the ditch check?
Does water flow under the ditch check?
Does water flow through spaces between abutting bales?
Are any bales and/or scour aprons (optional) dislodged?
Are bales decomposing due to age and/or water damage?
Does sediment need to be removed from behind the ditch check?

NOTE: Point A must be higher than Point B so that water flows over the bales and not around them.



ELEVATION

SILT FENCE DITCH CHECKS

(STREAM PROTECTION)

Material Specifications:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification.
The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

Placement:

Place silt fence in ditches where it is unlikely that it will be overtopped.
Water should flow through a silt fence ditch check, not over it. Silt fence ditch checks often fail when overtopped.
Silt fence ditch checks should be placed perpendicular to the flowline of the ditch.
The silt fence should extend far enough so that the ground level at the ends of the fence is higher than the top of the low point of the fence. This prevents water from flowing around the check.
Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead.
Silt fence should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.

The following table provides check spacing for a given ditch grade:

Ditch grade (%)	Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

Proper installation method:

Excavate a trench perpendicular to the ditch flowline that is at least 12" deep by 6" wide.
Extend the trench in a straight line along the entire length of the proposed ditch check.
Place the soil on the upstream side of the trench for later use.
Roll out a continuous length of silt fence fabric on the downstream side of the trench.
Place the edge of the fabric in the trench starting at the top upstream edge of the trench.
Line two sides of the trench with the fabric as shown on detail. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt fence fabric should remain exposed.
Lay the exposed silt fence on the upstream side of the trench to clear an area for driving in the posts. Just downstream of the trench, drive posts into the ground to a depth of at least 24". Place posts no more than 4' apart.
Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

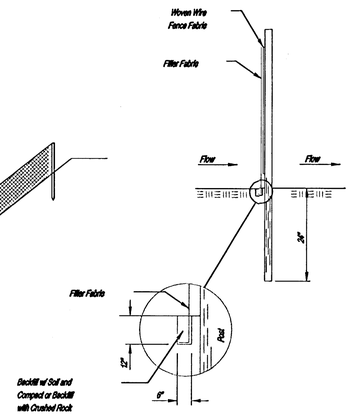
List of common placement/installation mistakes to avoid:

Water should flow through a silt fence ditch check-not over it. Place silt fence in ditches where it is unlikely that it will be overtopped. Silt fence installations quickly deteriorate when water overtops them.
Do not place silt fence posts on the upstream side of the silt fence fabric. In this configuration, the force of the water is not restricted by the posts, but only by the staples (wire, zip ties, nails, etc.). The silt fence will rip and fail.
Do not place a silt fence ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.
Do not place silt fence ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow.
Follow prescribed ditch check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks.
Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the fence is higher than the low point on the top of the fence.
Do not place silt fence ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.

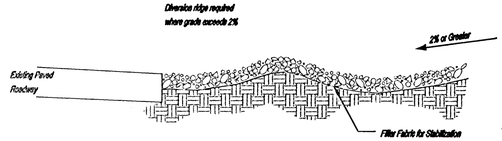
Inspection and Maintenance:

Silt fence ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

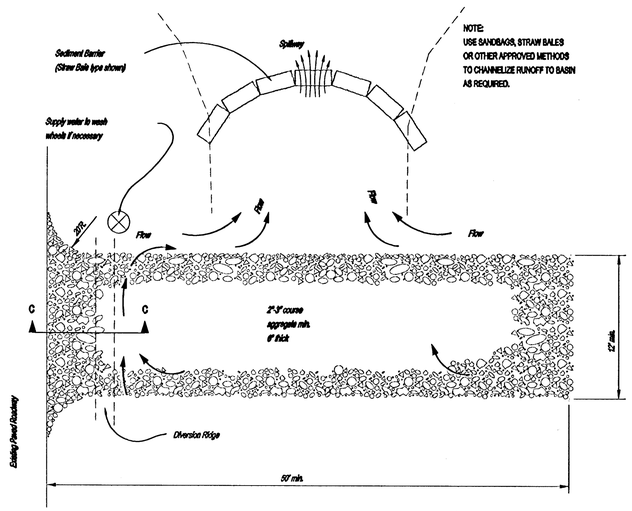
Does water flow around the ditch check?
Does water flow under the ditch check?
Does the silt fence sag excessively?
Has the silt fence torn or become detached from the posts?
Does sediment need to be removed from behind the ditch check?



ANCHOR TRENCH DETAIL



SECTION C-C



STABILIZED CONSTRUCTION ENTRANCE

NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
4. DRIVE ENTRANCES ONTO RESIDENTIAL LOTS WILL NOT BE REQUIRED TO HAVE THE SEDIMENT BARRIER SHOWN, BUT WHEEL WASHING MAY BE REQUIRED IF STABILIZED ENTRANCE IS NOT SUFFICIENT TO KEEP MUD FROM BEING TRACKED ONTO ADJACENT STREET. ENTRANCE SHALL EXTEND FROM BACK OF CURB TO DWELLING.

CITY OF WICHITA

SOIL EROSION BMP DETAILS

CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.
468-83428	743949
DATE: OCT 2002	SHEET 10 OF 10

50-10-01-12