

FAMILY SUPPORT CENTER

A TRACT OF LAND BEING PART OF
FRACTIONAL SECTION 33,
TOWNSHIP 47 NORTH, RANGE 3 EAST,
O'FALLON, MISSOURI

IMPROVEMENT PLANS



LOCATION MAP

"AS-BUILTS"
3-3-06

These "As-Built" Storm Sewer and Water plans, are based on actual field measurements conducted during January 2006 and the results are shown hereon.

By: *[Signature]* 1-31-06
JAMES R. CHERVEK P.L.S., #2211
STATE OF MISSOURI
PICKETT, RAY & SILVER'S CORPORATE
REGISTRATION NO. ES-54-D

BENCH MARKS
B.M. RM#727 (USGS) Sq. on north wingwall at east end of Mexico Rd. over Dardenne Creek.
ELEVATION = 462.06
SITE BM: "Sq." on the concrete base of the west gate post at the center entrance to Fort Zumwalt North High School
40'± south of the centerline of Tom Ginner Ave.
ELEVATION = 497.89

CITY OF O'FALLON GENERAL NOTES

- Gas, water and other underground utilities shall not conflict with the depth or horizontal locations of existing and proposed sanitary and storm sewers, including house laterals.
- Underground utilities have been plotted from available information and, therefore, their locations must be considered approximate only. The verification of the location of all underground utilities, either shown or not shown on these plans, shall be the responsibility of the contractor and shall be located prior to grading or construction of improvements.
- Polyvinyl Chloride (PVC) shall conform to the requirements of ASTM D-3034 Standard Specifications for the FPM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings, SDR-35.
- Storm sewers 18" in diameter or smaller shall be ASTM C-14.
- Storm sewers 21" in diameter or larger shall be ASTM C-76, Class II.
- All storm sewer pipe under pavement, regardless of size, shall be reinforced concrete pipe (ASTM C-76, Class II) unless noted otherwise in the plans.
- Corrugated metal pipe shall conform to the standard specifications for corrugated culvert pipe M-36, A.A.S.H.T.O. See plans for gauge.
- All filled places under proposed roads, proposed sanitary and storm sewer lines, and/or paved areas including trench backfills shall be compacted to 90% of maximum density as determined by the Modified AASHTO T-180 Compaction Test" or 95% of maximum density as determined by the Standard Proctor Test AASHTO T-99. All filled places in proposed roads shall be compacted from the bottom of the fill up. All tests shall be verified by a soils engineer concurrent with grading and backfilling operations. Ensure the moisture content of the soil in fill areas is to correspond to the compactive effort as defined by the Standard or Modified Proctor Test. Optimum moisture content shall be determined using the same test that was used for compaction. Soil compaction curves shall be submitted to the City of O'Fallon prior to the placement of fill. Proof rolling may be required to verify soil stability at the discretion of the City of O'Fallon.
- All earthen filled places within State, County, or City roads (Highways) shall be compacted to 95% of maximum density as determined by the "Standard Proctor Test A.A.S.H.T.O. T-99" (ASTM D-698) unless otherwise specified by local governing authority specifications. All tests will be verified by a soils engineer.
- All storm and sanitary trench backfills shall be water jetted. Granular fill will be used under paved areas.
- Easements shall be provided for storm sewers, sanitary sewers, and all utilities on the record plat. See record plat for location and size of easements. This does not apply to house laterals.
- No area shall be cleared without the permission of the developer.
- All grades shall be within 0.2 feet (more or less) of those shown on the grading plan.
- No slope shall be steeper than 3' (horizontal) to 1' (vertical) sodded or seeded and mulched.
- Hazard markers will consist of three (3) standard specification, "Manual on Uniform Traffic Control Devices," end of roadway markers mounted on two (2) pound "U" channel sign post. Each marker shall consist of an eighteen (18) inch diamond reflectorized red panel. The bottom of each panel shall be mounted a minimum of four (4) feet above the elevation of the pavement surface.
- All manhole and curb inlet tops built without elevations furnished by the Engineer will be the responsibility of the sewer contractor. At the time of construction stake-out of the sewer lines, all curb and grate inlets will be face staked. If normal face stakes fall in line with sewer construction, the Engineer will set these stakes on a double offset. It shall be the responsibility of the sewer contractor to preserve all face stakes from destruction.
- All standard street curb inlets to have front of inlet 2 feet behind curb.
- The minimum vertical distance from the low point of the basement to the flowline of a sanitary sewer at the corresponding house connection shall not be less than the diameter of the sanitary sewer plus a vertical distance not less than two and one-half feet (2-1/2').
- Water lines, valves, sleeves, meters and etc., shall meet all specifications and installation requirements of the local governing authority. Water mains shall have a minimum of 42" of cover.

- All cast iron pipe for water mains shall conform to A.W.W.A. specification C-106 and/or C-108. The cast iron fittings shall conform to A.W.W.A. specification C-110. All rubber gasket joints for water cast iron pressure pipe and fittings shall conform to A.W.W.A. specification C-111.
- All water hydrants and valves shall be cast iron and installed in accordance with plans and details.
- All sanitary and storm sewers shall meet all specifications and installation requirements of the local governing authority.
- All PVC water pipe shall have a minimum pressure rating of PR-200 or SDR-21. All new utilities under City streets shall be bored.
- All PVC sanitary sewer pipe shall be DR-35 or equal with crushed stone bedding uniformly graded between 1" and 1/4" size. This bedding shall extend from 6" below the pipe to 12" above the top of the pipe.
- All grading on Missouri State Highway Right-of-Way shall be seeded and mulched and all disturbed Right-of-Way markers shall be reset at the completion of grading.
- All streets must meet the specifications and installation requirements of the City of O'Fallon.
- All sanitary manholes top shall be set 0.2' higher than the proposed ground except in pavement areas.
- All sanitary manholes shall have a 31 mil thick coat of coal tar pitch waterproofing.
- All sanitary service lines shall have a 6" diameter.
- Manhole frame and cover shall be Clay and Bailey No. 2008 or Neenah R-1736 or Deeter 1315 or approved equal.
- A drop of 0.2 feet is required through each sanitary manhole. Minimum cover of 42" is required on all sanitary sewer mains.
- The City of O'Fallon shall be notified at least 48 hours prior to construction of sanitary sewers for coordination and inspection.
- Brick shall not be used on in the construction of sanitary or storm sewer structures.
- 5/8" diameter trash bars shall be provided for all inlets.
- Waterproofing: Waterproofing will be required on the exterior of all manholes. The bitumen shall consist of two coats of asphalt, coal-tar pitch, or a coating meeting American Society for Testing and Materials (ASTM D-41. Asphalt shall conform to the requirements of ASTM D 449. Coal-tar pitch shall conform to the requirements of ASTM D-450. Coating shall be 31 mils thickness.
- All concrete pipe or ADS N-12 pipe shall be installed with "O-Ring" Rubber type gaskets per M.S.D. standard construction specifications or manufacturer.
- The contractor shall assume complete responsibility for controlling all siltation and erosion of the project area. The contractor shall use whatever means necessary to control erosion and siltation including, but not limited to, staked straw bales and/or siltation fabric fences (possible methods of control are detailed in the plan). Control shall commence with grading and be maintained throughout the project until acceptance of the work by the Owner and/or the City of O'Fallon and/ or MoDOT. The contractor's responsibilities include all design and implementation as required to prevent erosion and the depositing of silt. The Owner and/ or the City of O'Fallon and/ or MoDOT may at their option direct the Contractor in his methods as deemed fit to protect property and improvements. Any depositing of silts or mud on new or existing pavement or in new or existing storm sewers or swales shall be removed after each rain and affected areas cleaned to the satisfaction of the Owner and/ or the City of O'Fallon and/ or MoDOT.
- Developer must supply City construction inspectors with soils reports prior to or during site soil testing.
- All paving to be in accordance with St. Charles County standards and specifications except as modified by the City of O'Fallon ordinances.
- Owner shall provide a copy of the soils report to grading contractor. Contractor shall be responsible for adhering to all recommendations outlined in the soils report.
- At least a 1% slope is provided for pipes less than 36".
- All new utilities under City streets shall be bored.

DRAWING INDEX

Sheet	Description
1	COVER SHEET
2	SITE PLAN
3	GRADING PLAN
4	DRAINAGE AREA MAP
5-6	CONSTRUCTION DETAILS
7	WATER DETAILS
8	SEDIMENT CONTROL PLAN
E-1	LIGHTING PLAN

LEGEND

	Sanitary Sewer (Proposed)		R.C.P. Reinforced Concrete Pipe
	Sanitary Sewer (Existing)		C.M.P. Corrugated Metal Pipe
	Storm Sewer (Proposed)		C.I.P. Cast Iron Pipe
	Storm Sewer (Existing)		P.V.C. Polyvinyl Chloride
	Water Line & Size		V.C.P. Vitrified Clay Pipe
	Existing water line		Double Water Meter Setting
	Tee & Valve		Single Water Meter Setting
	Hydrant		C.I. Curb Inlet
	Cap		S.C.I. Skewed Curb Inlet
	18 Lot or Building Number		D.C.I. Double Curb Inlet
	Existing Fence Line		G.I. Grate Inlet
	Street Sign		A.I. Area Inlet
	Existing Contour		D.A.I. Double Area Inlet
	Proposed Contour		C.C. Concrete Coffer
	Grouted Rip-Rap		F.E. Flared End Section
	End of Lateral		E.P. End Pipe
	Asphalt Pavement		E.D. Energy Dissipator
	Concrete Pavement		M.H. Manhole
			C.P. Concrete Pipe
			R.C.P. Reinforced Concrete Pipe
			C.M.P. Corrugated Metal Pipe
			C.I.P. Cast Iron Pipe
			P.V.C. Polyvinyl Chloride
			V.C.P. Vitrified Clay Pipe
			C.O. Clean Out
			V.T. Vent Trap
			T.B.R. To Be Removed
			T.B.R.&R. To Be Replaced
			T.B.P. To Be Protected
			T.B.A. To Be Abandoned
			B.C. Base Of Curb
			T.C. Top Of Curb
			T.W. Top Of Wall
			B.W. Base Of Wall
			(TYP) Typical
			U.N.D. Unless Noted Otherwise
			U.I.P. Use In Place



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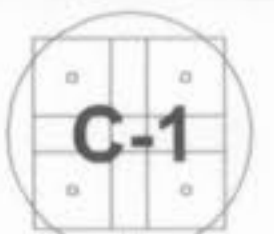
NEW BUILDING FOR
FAMILY SUPPORT SERVICES
105 Crossings Industrial Court
O'Fallon, Missouri

DESCRIPTION:

PLANNING & DESIGN	5/01/04
PER O'FALLON	11/12/04
PER O'FALLON	04-12-05
PER O'FALLON	05-02-05

Issue Date:	12/13/04
Job Number:	01212.189.61.000
Drawn By:	D.L.S.
Checked By:	D.W.B.

Drawing Title:
COVER SHEET



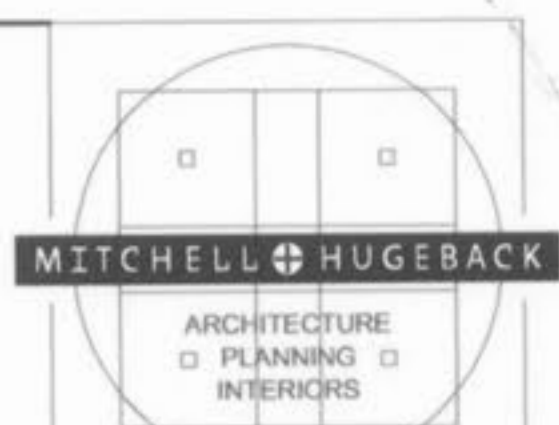
FILE #4604.01

PICKETT RAY & SILVER

Civil Engineers 333 Mid Rivers Mall Dr.
Planners St. Peters, MO 63376
Land Surveyors 397-1211 FAX 397-1104

A TRACT OF LAND BEING PART OF FRACTIONAL SECTION 33, TOWNSHIP 47 NORTH, RANGE 3 EAST, O'FALLON, MISSOURI

- GENERAL NOTES**
- Present Zoning: P.U.D. I-1 Light Industrial
 - Proposed Use: Family Support Center
 - Area of Tract: 3.64 Acres
 - Project is Served By:
 - A. City of O'Fallon Water
 - B. St. Charles Gas Company
 - C. CenturyTel Telephone Company
 - D. City of O'Fallon Sewers
 - E. Ameren UE
 - F. O'Fallon Fire Protection District
 - All utilities shall be located underground.
 - Parking and building shall be in compliance with A.D.A. Accessibility Guidelines.
 - All dimensions taken from back of curb unless otherwise noted.
 - Building height, site lighting and signage shall be in accordance with City of O'Fallon's requirements.
 - Setback and yard requirements:
 - Front - 30 feet
 - Side - 20 feet
 - Rear - 35 feet
 - Grading and drainage shall be per the requirements of the City of O'Fallon.
 - Architectural treatment to be provided on all sides of buildings. Architectural treatment shall remain consistent throughout the project.
 - All easements shall be provided for on record plat.
 - Exterior lighting details and photometric plan shall be submitted and approved prior to construction plan approval.
 - Proposed lighting shall be directed down and shielded so as not to overflow onto adjacent residential properties. Wall pack lighting shall not be permitted. Lighting details and photometrics in accordance with the City's standards shall be submitted and approved prior to construction approval.
 - No slope shall be greater than 3:1 during construction and at final grade.
 - Per F.J.R.M. #29183C0235E August 2, 1996, site is not located within the 100 Year Flood Plain.
 - Trash enclosures shall be a minimum of 6 foot high and shall be constructed of materials that match or compliment building architecture. Enclosures shall have vinyl gates matching building colors.
 - Signage locations and sizes to be reviewed and approved separately through the Planning Division. Signage shall be permitted separately.
 - Building and parking shall be in conformance with City of O'Fallon's requirements for I-1 zoning.
 - Backflow prevention devices for water service shall be located inside the building.
 - Location of backflow preventer and water services shall be addressed with architectural drawings. Water meter locations shall be coordinated with water company.
 - Detention calculations shall be submitted and approved prior to construction plan approval. Detention shall be designed to accommodate 100 year storm.
 - All new utilities under City streets shall be bored.
 - All trash pick up and loading and unloading operations will not occur between the hours of 9:00 p.m. and 7:00 a.m.
 - All handicap sidewalk ramps shall be concrete and shall meet ADA color requirements.
 - No outdoor display of materials or products, temporary or otherwise, shall occur beyond the area between the front of the building and the driveway aisle. No such materials shall be attached or affixed to any exterior wall.
 - Lighting values will be reviewed on site prior to final occupancy inspection.
 - All proposed fencing requires a separate permit through the Planning Division.
 - All sign post and backs and bracket arms shall be painted black using Carboline Rustbond Penetrating Sealer SG and Carboline 133 HB point (or equivalent as approved by City and MoDOT). Signs designating street name shall be on the opposite side of the street from traffic control signs.
 - All rooftop mounted HVAC and mechanical units shall be screened by a parapet wall, the parapet wall shall have a minimum height that is at least as tall as the tallest unit mounted on the roof. Ground mounted HVAC and mechanical units shall be screened by fencing, vegetation, or some other means (approved by the Planning and Zoning Commission) that has a minimum height that is at least as tall as the tallest unit being screened.
 - Utility contractor shall coordinate utility connections with general contractor.
 - There shall be a 5/8" trash bar on all curb and area inlets.
 - No existing trees are being removed from this site.
 - Trucks making deliveries will be small delivery type trucks.



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NEW BUILDING FOR
FAMILY SUPPORT SERVICES
105 Crossings Industrial Court
O'Fallon, Missouri

DESCRIPTION	DATE
PLANNING & ZONING	5/01/04
PRICING PACKAGE	11/12/04
PER O'FALLON	03-03-05
PER O'FALLON	04-13-05
PER O'FALLON	05-02-05
PER FIRE DISTRICT	05-31-05

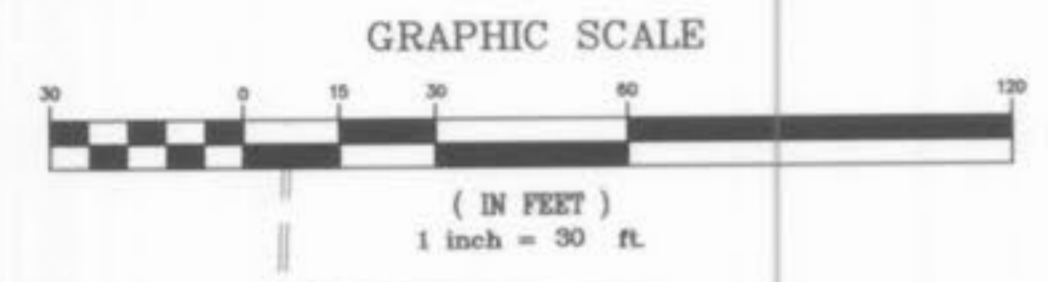
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Job Number: 01212.1096.000
Drawn By: D.L.S.
Checked By: D.W.B.

Drawing Title:
SITE PLAN

STATE OF MISSOURI
JAMES R. CLAY
REGISTERED LAND SURVEYOR
1-23-06

C-2

FILE #4604.01
Family Support Center Assb PG 2



SITE COVERAGE CALCULATIONS FOR PHASE 1

AREA OF SITE=	158,703 S.F. (3.64 ACRES)
AREA OF BUILDING=	22,199 S.F. (0.51 ACRES) = 13.9%
AREA OF PAVEMENT=	47,480 S.F. (1.09 ACRES) = 29.9%
LANDSCAPED OPEN SPACE=	89,204 S.F. (2.04 ACRES) = 56.2%

PARKING REQUIREMENTS

RESPIRE (CONVALESCENT/NURSING HOME)
1 SPACE PER 3 BEDS PLUS 1 SPACE FOR EVERY 2 EMPLOYEES
5 BEDS/3=1.6667 (2 SPACES REQUIRED)
3 EMPLOYEES/2=1.5 (2 SPACES REQUIRED)

TEEN CENTER (SCHOOL FOR ADULTS)
1 SPACE FOR EVERY 3 STUDENTS PLUS 1 SPACE FOR EVERY 2 STAFF
25 STUDENTS/3=8.333 (8 SPACES REQUIRED)
15 STAFF/2=7.5 (8 SPACES REQUIRED)

OFFICE
1 SPACE PER 300 S.F. FLOOR AREA
4000 S.F./300=13.333 (14 SPACES REQUIRED)

CENTER FOR AUTISM (DAY CARE CENTER)
1 SPACE PER 10 STUDENTS PLUS 1 SPACE PER EMPLOYEE
46 STUDENTS/10=4.6 (5 SPACES REQUIRED)
50 STAFF/1=50 (50 SPACES REQUIRED)

TOTAL REQUIRED 89 PS
PARKING PROVIDED 89 PS
DIFFERENCE 0 PS

NOTE
SIDEWALKS, CURB RAMPS, RAMP AND ACCESSIBLE PARKING SPACES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT APPROVED "AMERICAN WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES" (ADAAG) ALONG WITH THE REQUIRED GRADES, CONSTRUCTION MATERIALS, SPECIFICATIONS AND SIGNAGE. IF ANY CONFLICT OCCURS BETWEEN THE ABOVE INFORMATION AND THE PLANS, THE ADAAG GUIDELINES SHALL TAKE PRECEDENCE AND THE CONTRACTOR PRIOR TO ANY CONSTRUCTION SHALL NOTIFY THE PROJECT ENGINEER.

LANDSCAPE CALCULATIONS

Street Trees = 1 tree per every 40.00' of public or private street frontage.
Placed at 40.00' intervals inside the landscape setback

592 LIN. FT. STREET FRONTAGE / 40 = 15 TREES REQUIRED / 16 TREES PROVIDED

PLANT SCHEDULE
(NOTE: LANDSCAPING NOT SHOWN TO SCALE)

16	RED SUNSET MAPLE	Acer rubrum 'Red Sunset'	
9	BECHTELS FLOWERING CRAB	Malus ioensis 'Pinnis'	4' TALL
31	MUDD PINE	Pinus mugo mughus	2 GAL.
30	EMERALD N' GOLD EUONYMUS	Euonymus fortunei 'Emerald 'n Gold'	2 GAL.

*CONIFER TREES MUST BE A MINIMUM OF 6' IN HEIGHT.
*DECIDUOUS TREES MUST BE A MINIMUM OF 2" IN CALIPER

INTERIOR GREEN SPACE CALCS

PARKING AREA	24840 SF
INTERIOR GREEN SPACE	6%
REQ. INT. GREEN SPACE	1,490.4 SF
PROVIDED INTERIOR GREEN SPACE	2646 SF

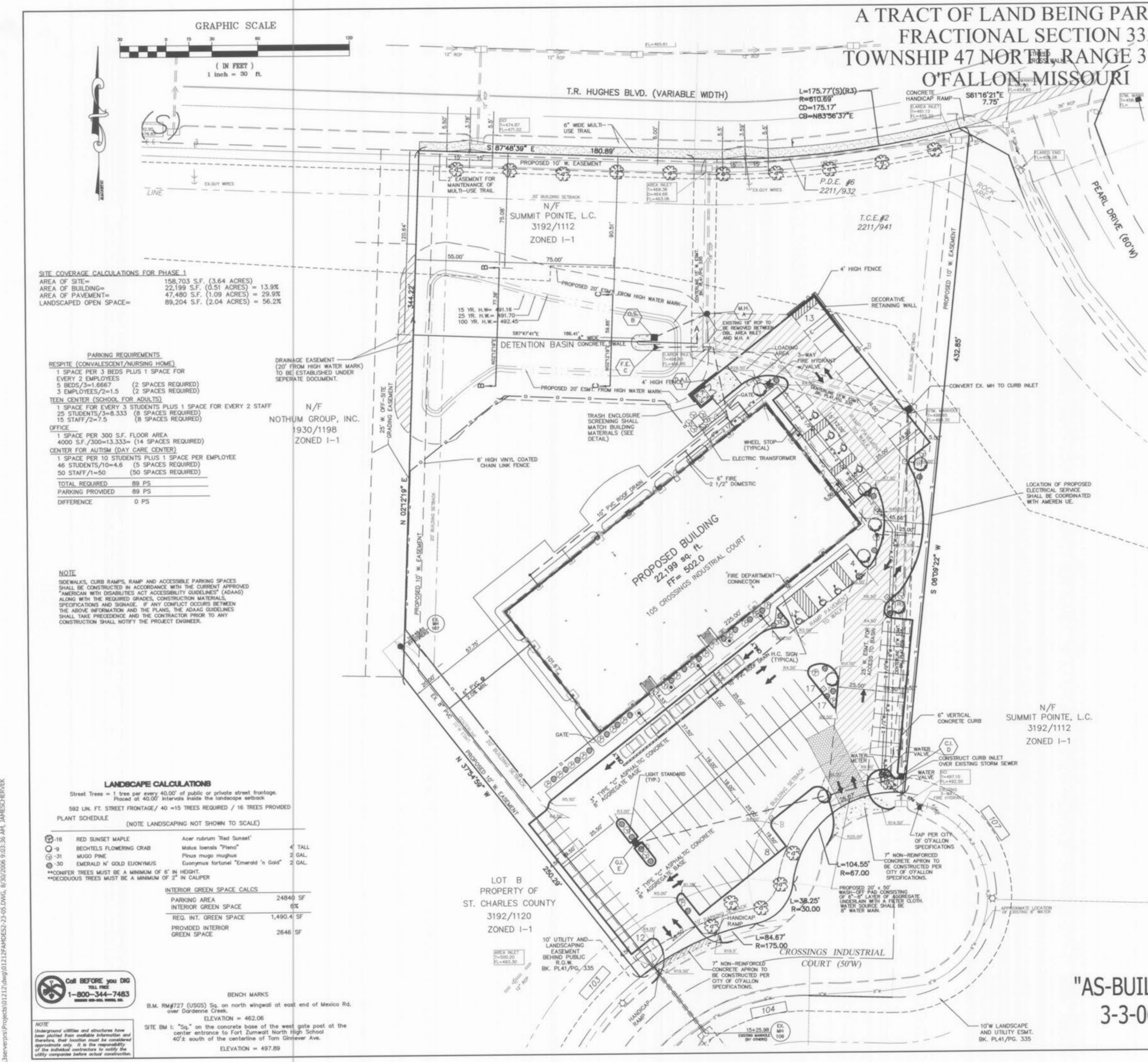
Call BEFORE you DIG
1-800-344-7483
MISSOURI ONE-CALL SERVICE, INC.

BENCH MARKS
B.M. RM#727 (USGS) Sta. on north wingwall at east end of Mexico Rd. over Dardenne Creek.
ELEVATION = 462.06

SITE BM 1: "S₀" on the concrete base of the west gate post at the center entrance to Fort Zumwalt North High School.
40' S. of the centerline of Tom Givner Ave.
ELEVATION = 497.89

NOTE
Underground utilities and structures have been plotted from available information and therefore, their location must be considered approximate only. It is the responsibility of the subsurface utility contractor to verify the utility companies before actual construction.

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"AS-BUILTS"
3-3-06

A TRACT OF LAND BEING PART OF
FRACTIONAL SECTION 33,
TOWNSHIP 47 NORTH, RANGE 3 EAST,
O'FALLON, MISSOURI

MITCHELL HUGEBACK

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314.822.7668 fax

NEW BUILDING FOR
FAMILY SUPPORT SERVICES
105 Crossings Industrial Court
O'Fallon, Missouri

DESCRIPTION:

PLANNING & ZONING	5/01/04
PER O'FALLON	11/17/04
PER O'FALLON	03-03-05
PER O'FALLON	04-12-05
PER O'FALLON	05-02-05
PER FIRE DISTRICT	05-31-05

Issue Date:	12/13/04
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Checked By:	D.W.B.
Drawing Title:	GRADING PLAN

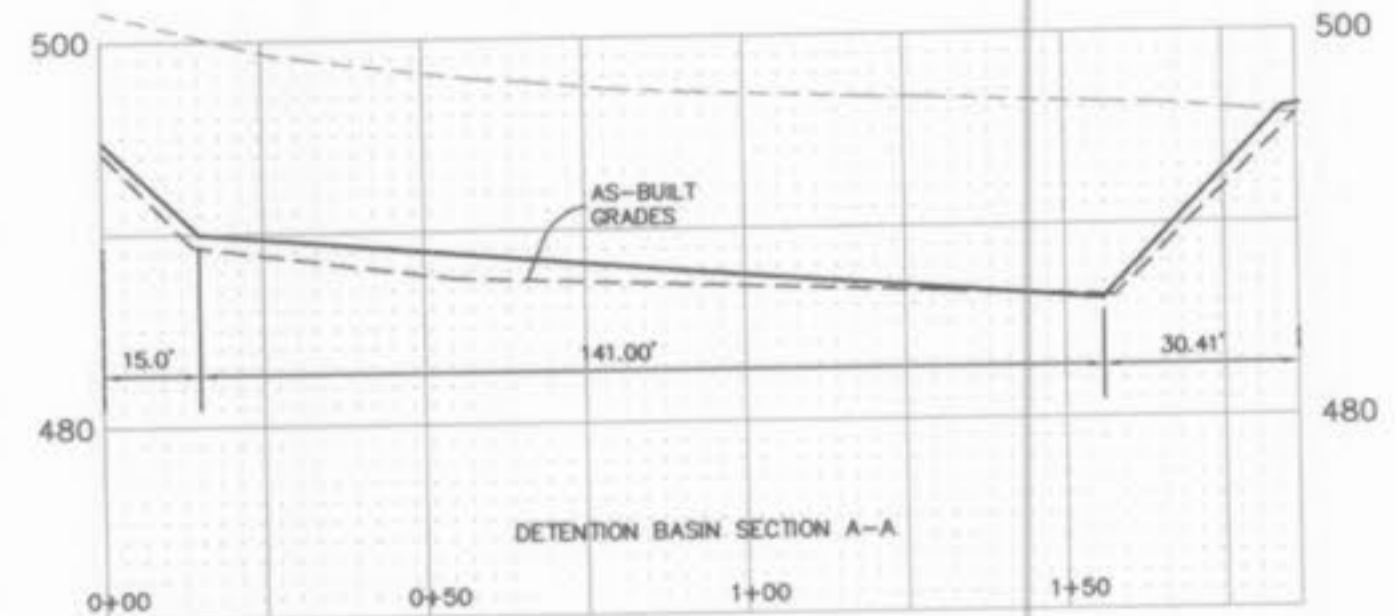
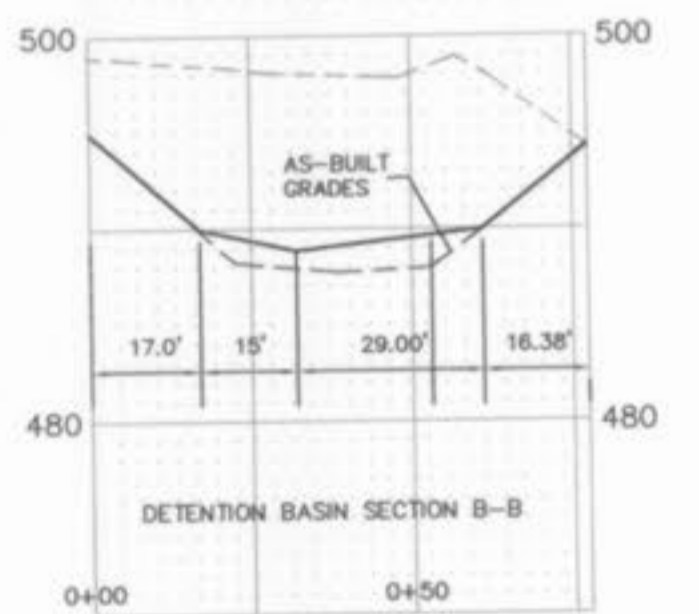
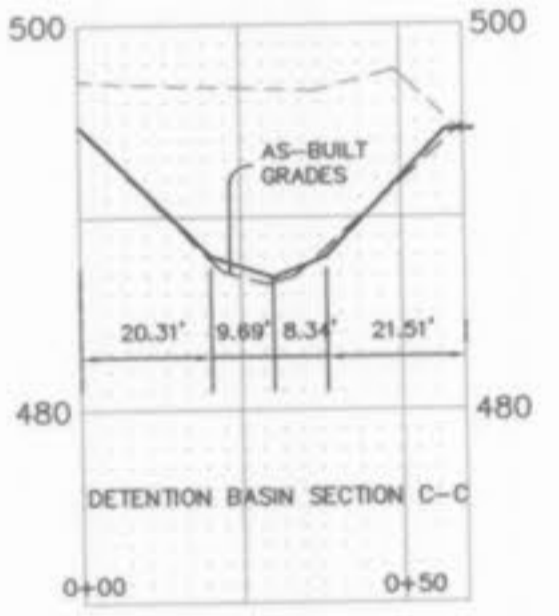
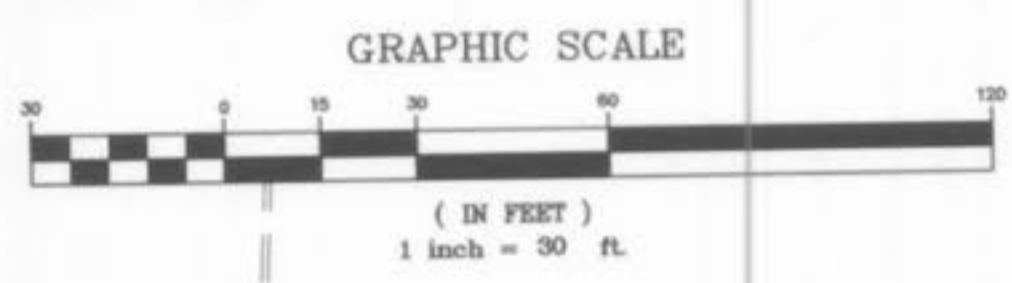
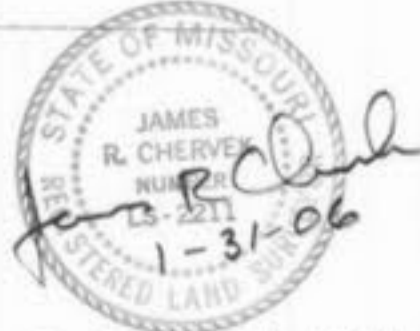
C-3

FILE #4604.01
Family Support Center Asb PG3

- GRADING NOTES
- Siltation control will be provided as required to prevent
 - Siltation control shall be silt fence and/or straw bales placed end to end and anchored with no less than 3' long x 2"x1" wooden stakes. Upon completion of storm sewers, straw bales shall be placed on all sides of structures and shall remain until all graded areas are seeded or sodded.
 - All straw bales must be counterlapped a minimum of 3" and additional straw bales shall be placed at the direction
 - The contractor shall field investigate the entire site prior to his bid submittal noting the existing vegetation and trees and including the removal and disposal of some
 - No area shall be cleared without permission of the
 - All grade shall be within 0.2 feet more or less of those shown on the grading plan.
 - No slope shall be greater than 3:1 and shall be either sodded or seeded or mulched.
 - The contractor shall restore affluents construction areas to an equal or better condition than existed prior to commencement of construction.
 - Earth subgrade for paved areas must be compacted to a minimum 90% of maximum dry density as determined by the Modified AASHTO T-180 Compaction Test or 95% of maximum density as determined by the Standard Proctor Test AASHTO T-99. All filled places in proposed roads shall be compacted from the bottom of the fill up. All test shall be verified by a soils engineer concurrent with grading and backfilling operations and must be approved by a City Representative before paving may commence. Owner to provide a copy of the soils report to the grading contractor. Contractor shall be responsible for adhering to all recommendations outlined in the soils report.
 - Soil preparation and revegetation shall consist of Tall Fescue (TF) & Smooth Bromes (SB) between March 1st and June 1st at a rate of TF=30lb/AC & SB=20lb/AC. See Appendix A of the Model Sediment and Erosion Control Regulations for Urban Development.
 - Proposed phasing of development (rough dates) including:
DEC 04 - JAN 04 a. Clearing
JAN 05 - MAY 05 b. Grading and construction (installation of temporary sediment control, storm drainage, paving).
MAY 05 - JUNE 05 c. Final Grading and Landscaping (vegetative cover).
 - Where natural vegetation is removed during grading, vegetation shall be re-established in such a density as to prevent erosion. Permanent type grasses shall be established as soon as possible or during the next seeding period after grading has been completed. Refer to Appendix A of St. Charles Soil and Water Conservation District - Model Sediment and Erosion Control
 - When grading operations are completed or suspended for more than 14 days, permanent grass must be established at sufficient density to provide erosion control on the site. Between permanent grass seeding periods, temporary cover shall be provided according to the designated officials recommendation. Refer to Appendix A of St. Charles Soil and Water Conservation District - Model Sediment and Erosion Control Regulations.
 - Developer must supply City construction inspectors with soils reports prior to or during site soil testing.
 - Erosion control systems shall be inspected and necessary corrections made within 24 hours of any rainstorm resulting in one-half inch of rain or more.

- EROSION AND SEDIMENT CONTROL NOTES:
- EROSION AND SILTATION CONTROL SHALL BE INSTALLED PRIOR TO ANY GRADING AND BE MAINTAINED THROUGHOUT THE PROJECT UNTIL ACCEPTANCE OF THE WORK BY THE OWNER AND/OR CONTROLLING REGULATORY AGENCY AND ADEQUATE VEGETATIVE GROWTH INSURES NO FURTHER EROSION OF THE SOIL.
 - TEMPORARY SILTATION CONTROL MEASURES (STRUCTURAL) SHALL BE MAINTAINED UNTIL VEGETATIVE COVER IS ESTABLISHED AT A SUFFICIENT DENSITY TO PROVIDE EROSION CONTROL ON THE SITE.
 - ALL FINISHED GRADES (AREAS NOT TO BE DISTURBED BY FUTURE IMPROVEMENT) IN EXCESS OF 20% SLOPES (5:1) SHALL BE MULCHED AND TACKED AT THE RATE OF 100 POUNDS PER 1,000 SQUARE FEET WHEN SEEDED.
 - STORM WATER PIPES, OUTLETS AND CHANNELS SHALL BE PROTECTED BY SILT BARRIERS AND KEPT FREE OF WASTE AND SILT AT ALL TIMES PRIOR TO FINAL SURFACE STABILIZATION AND/OR PAVING.
 - SILTATION FENCES SHALL BE INSPECTED PERIODICALLY FOR DAMAGE AND FOR THE AMOUNT OF SEDIMENT WHICH HAS ACCUMULATED. REMOVAL OF SEDIMENT WILL BE REQUIRED WHEN IT REACHES 1/2 THE HEIGHT OF THE SILTATION FENCE.
 - SITE SHALL SHEET DRAIN DURING GRADING OPERATIONS SIMILAR TO EXISTING CONDITIONS. NO ADDITIONAL TEMPORARY DRAINAGE WAYS WILL BE NECESSARY TO ADEQUATELY HANDLE DRAINAGE DURING GRADING OPERATIONS.

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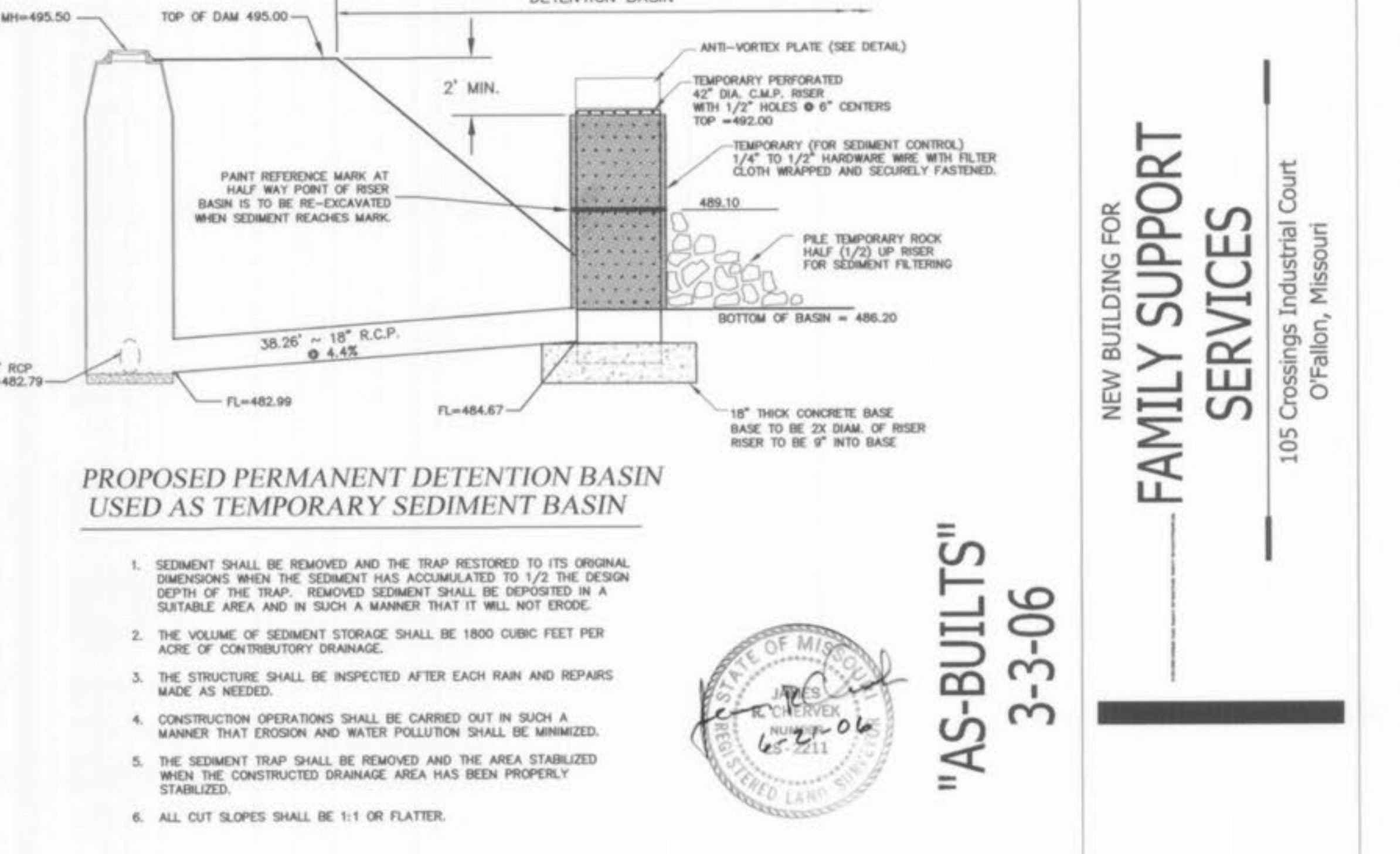
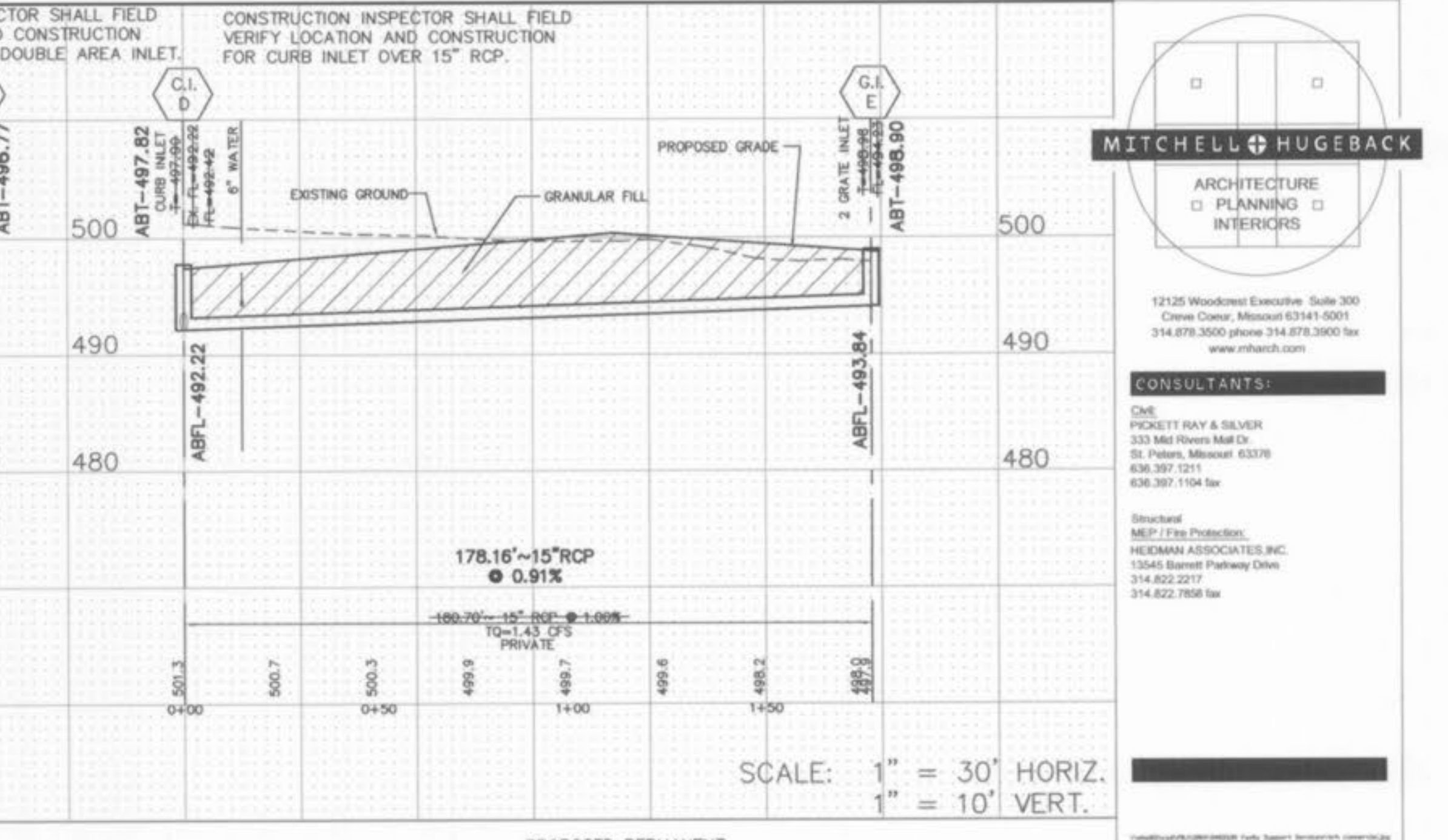
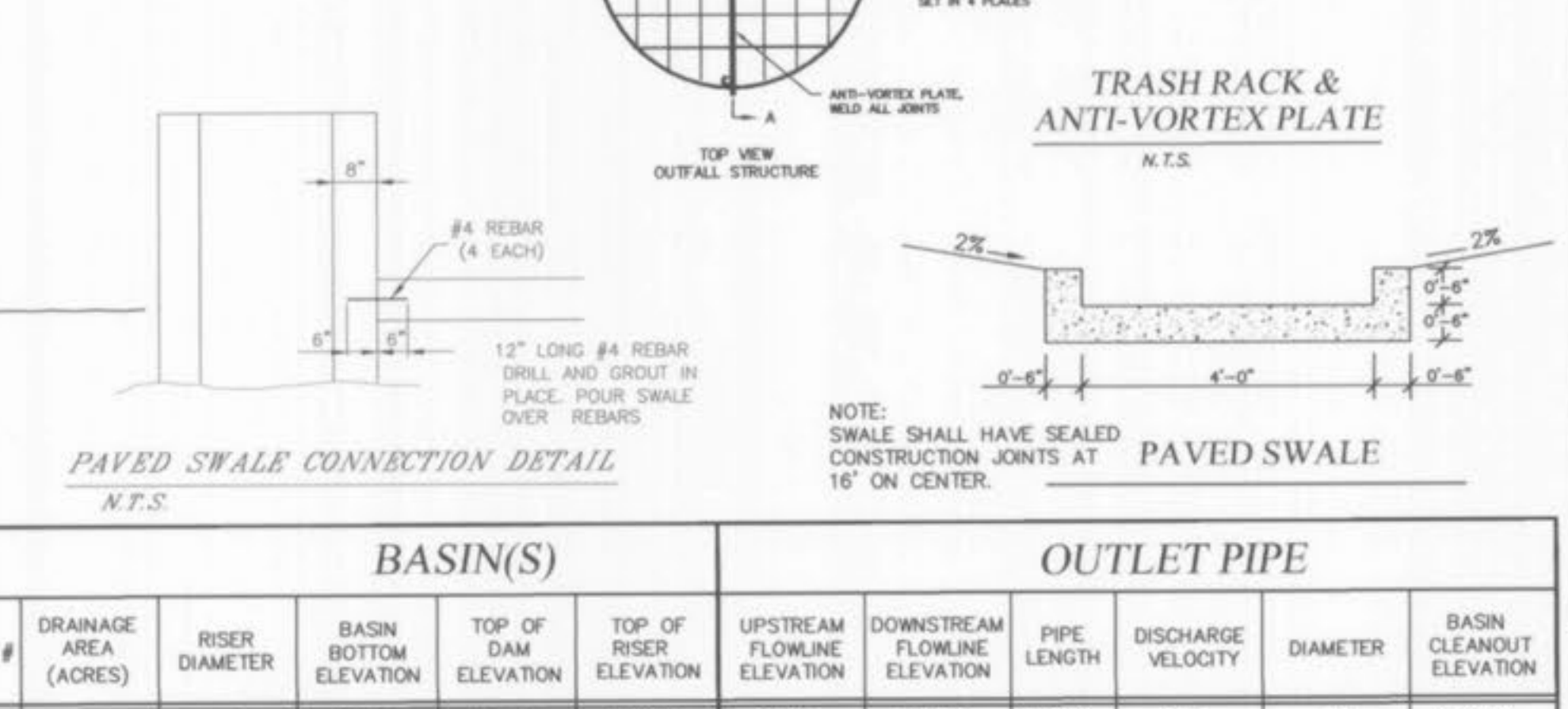
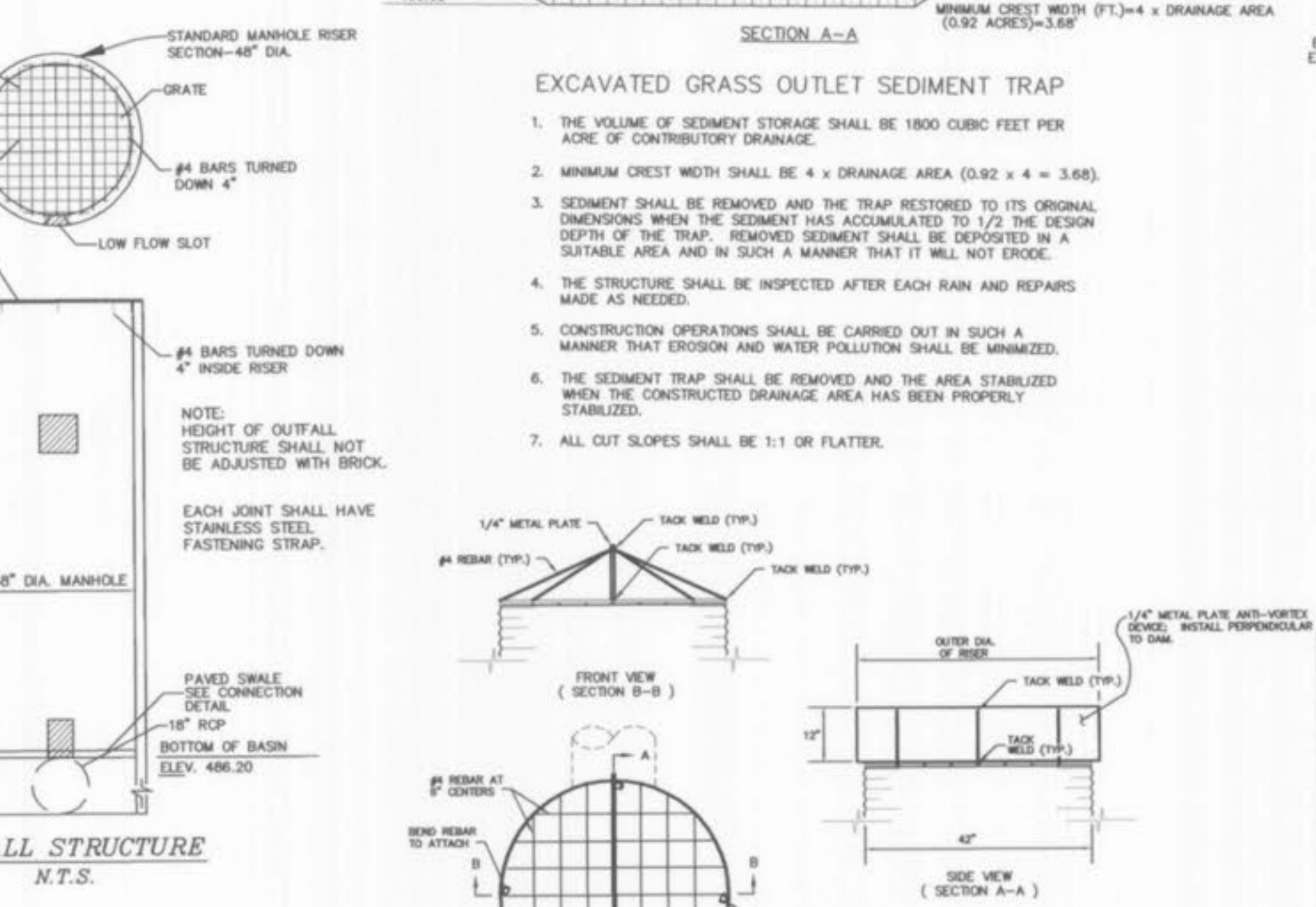
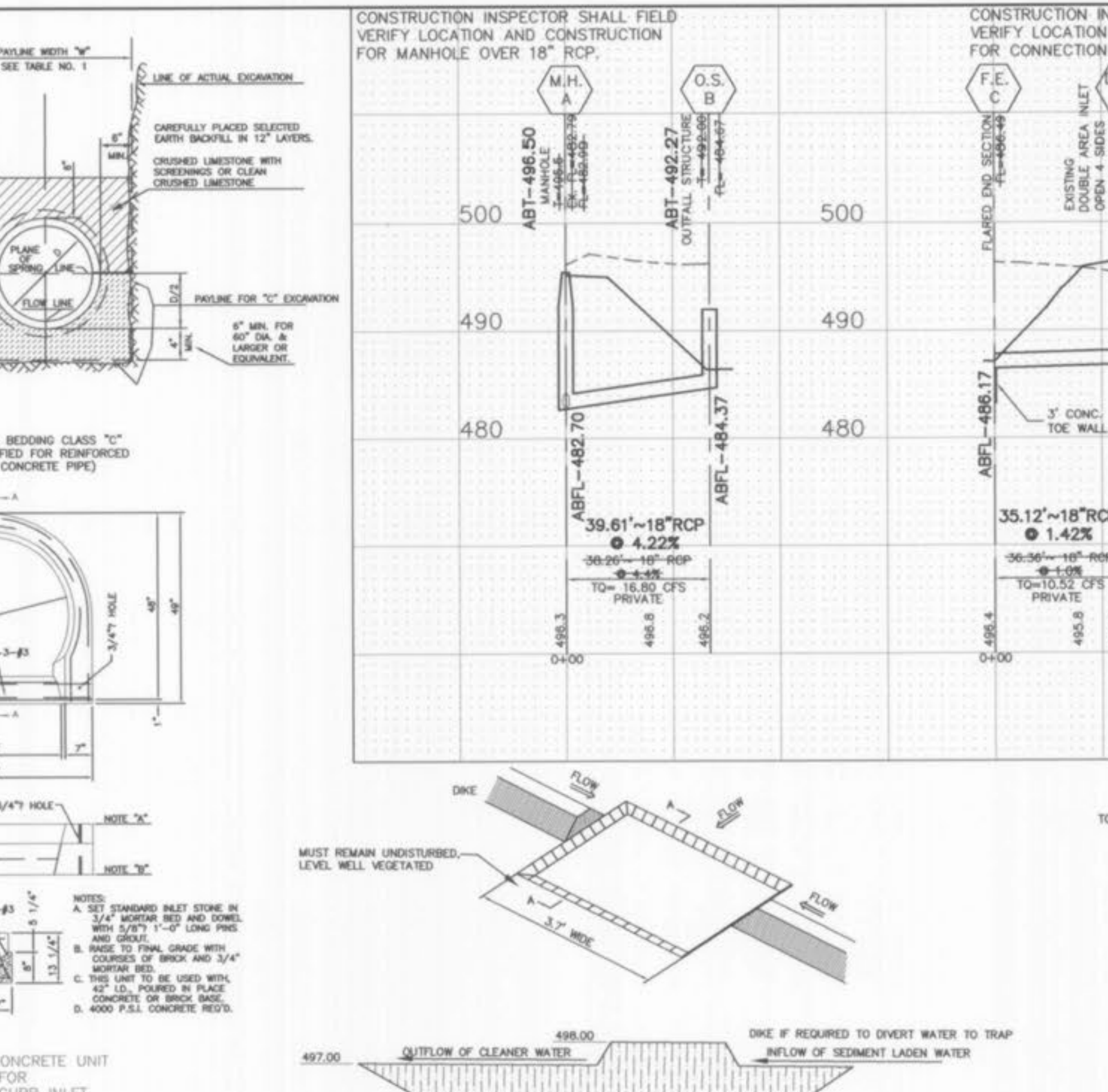
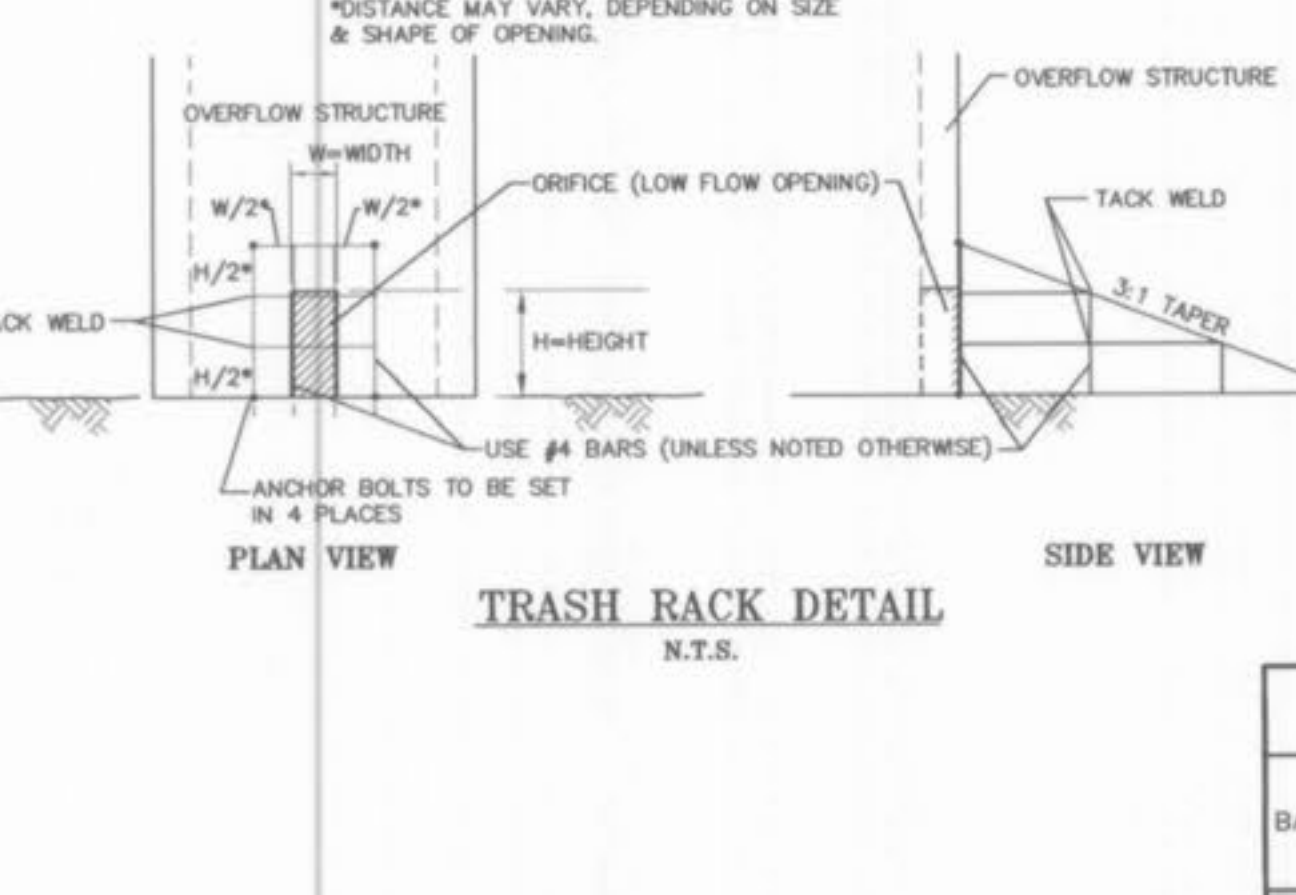
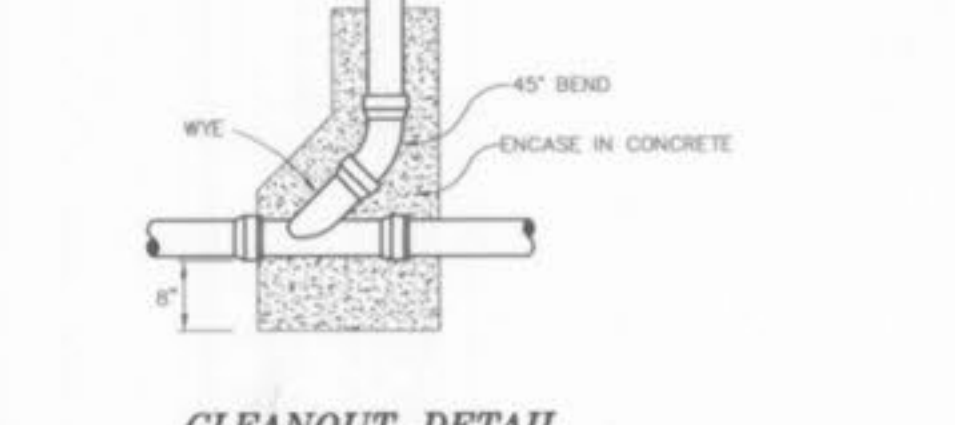
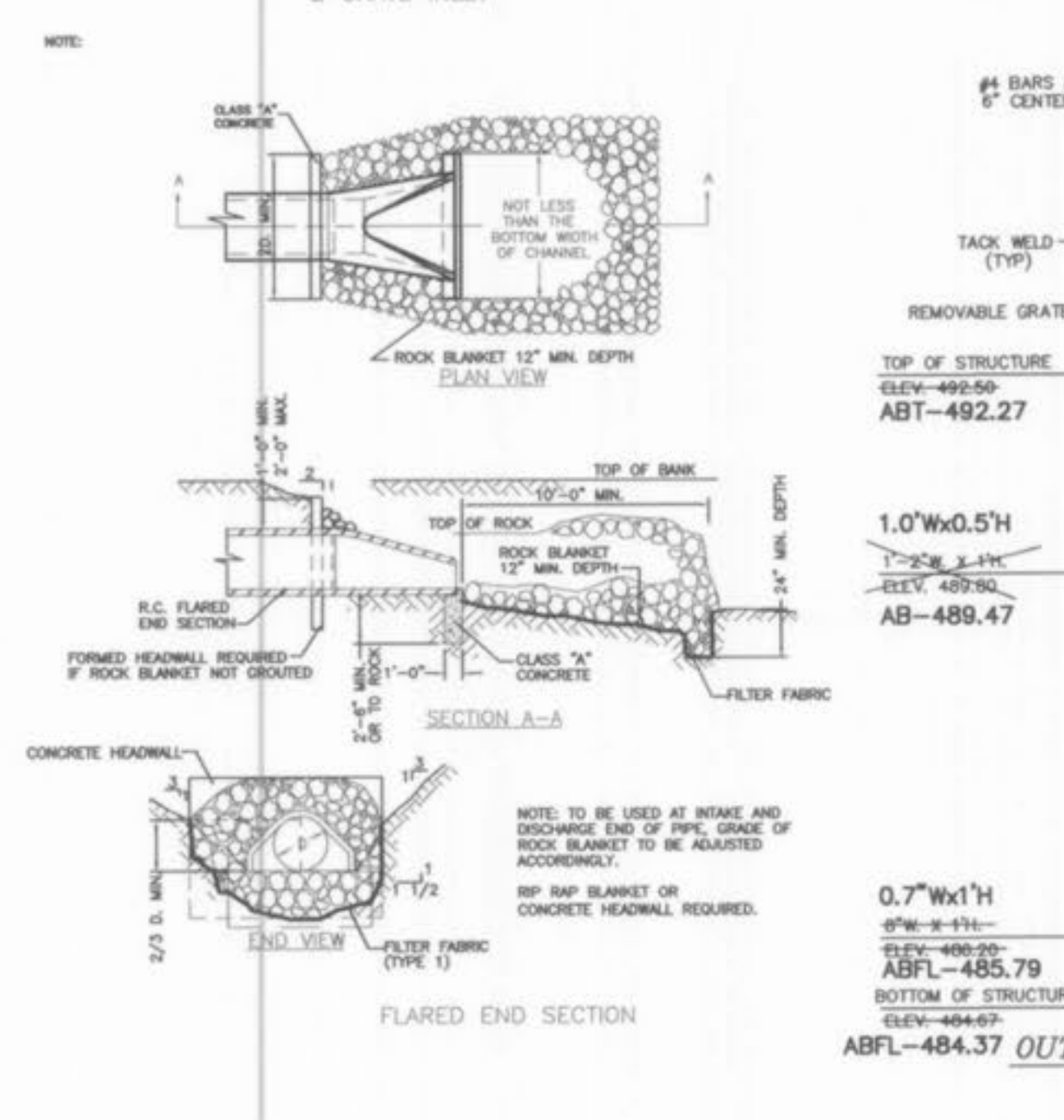
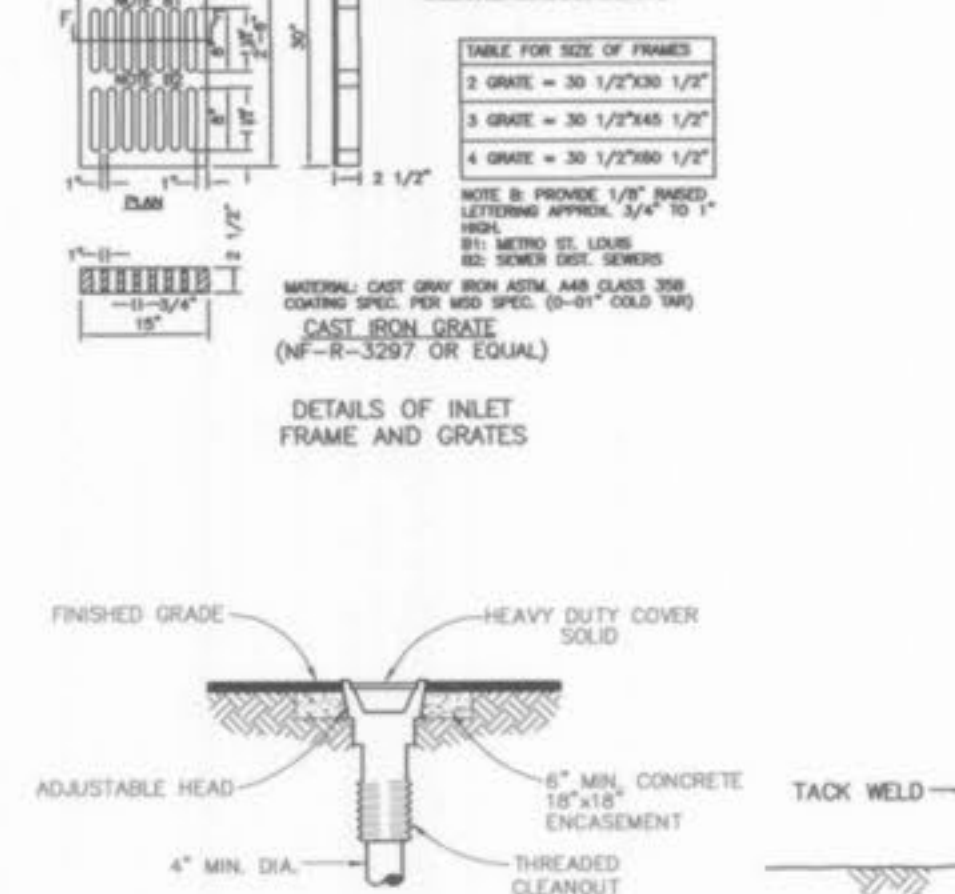
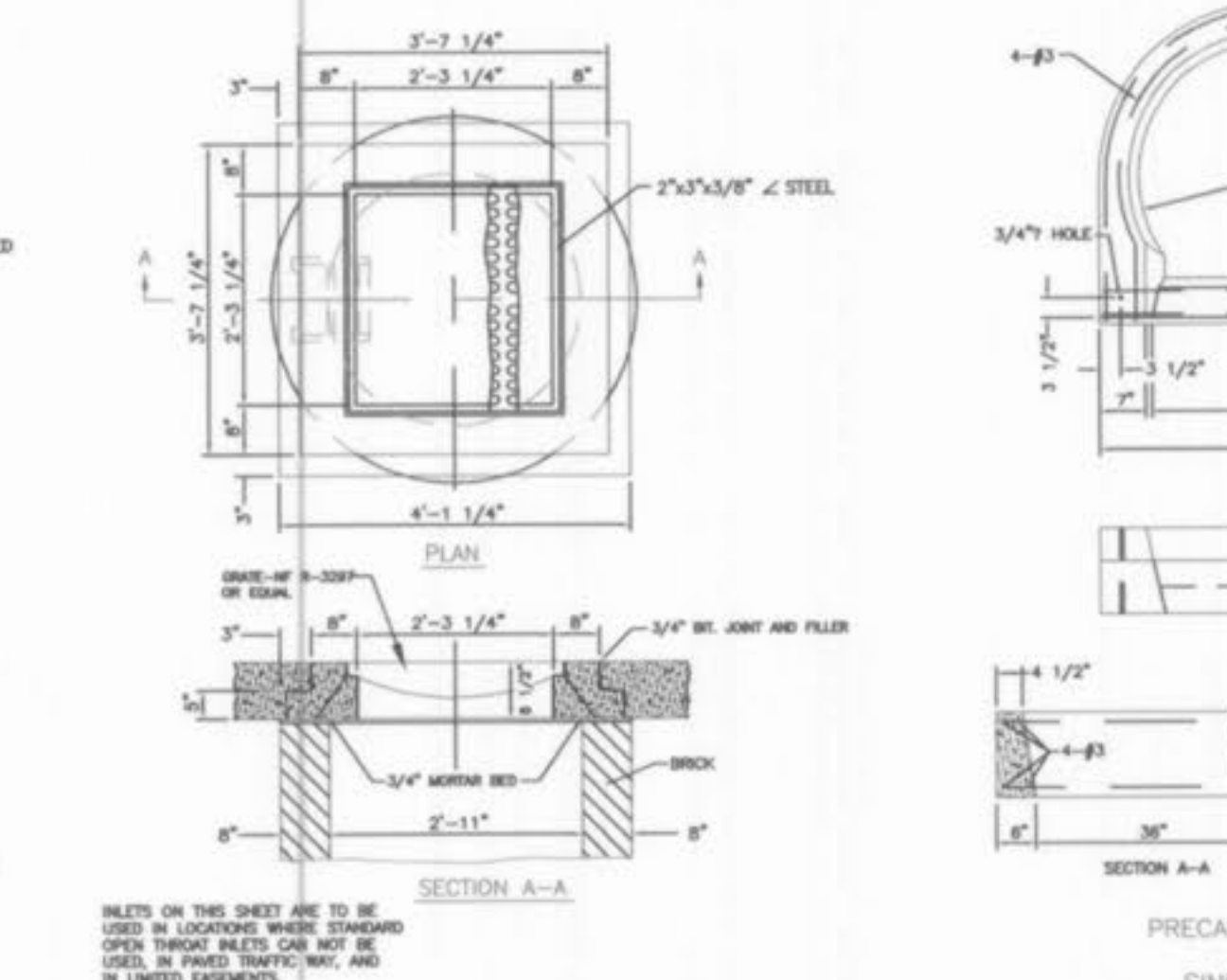
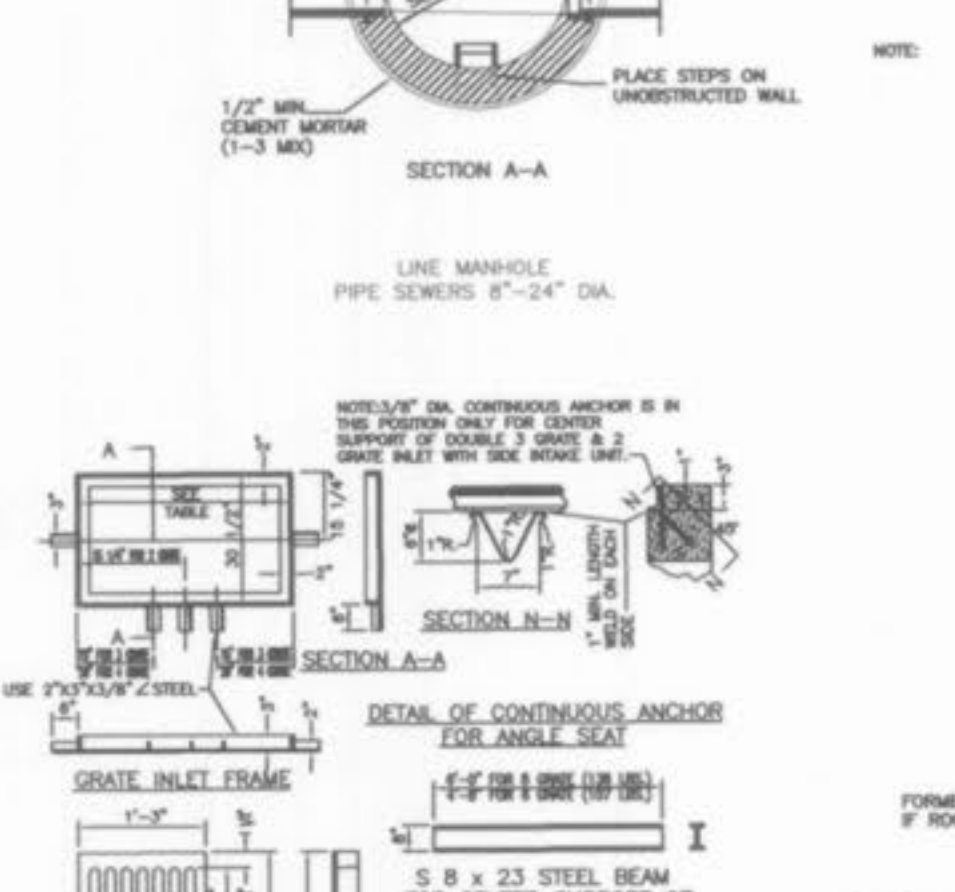
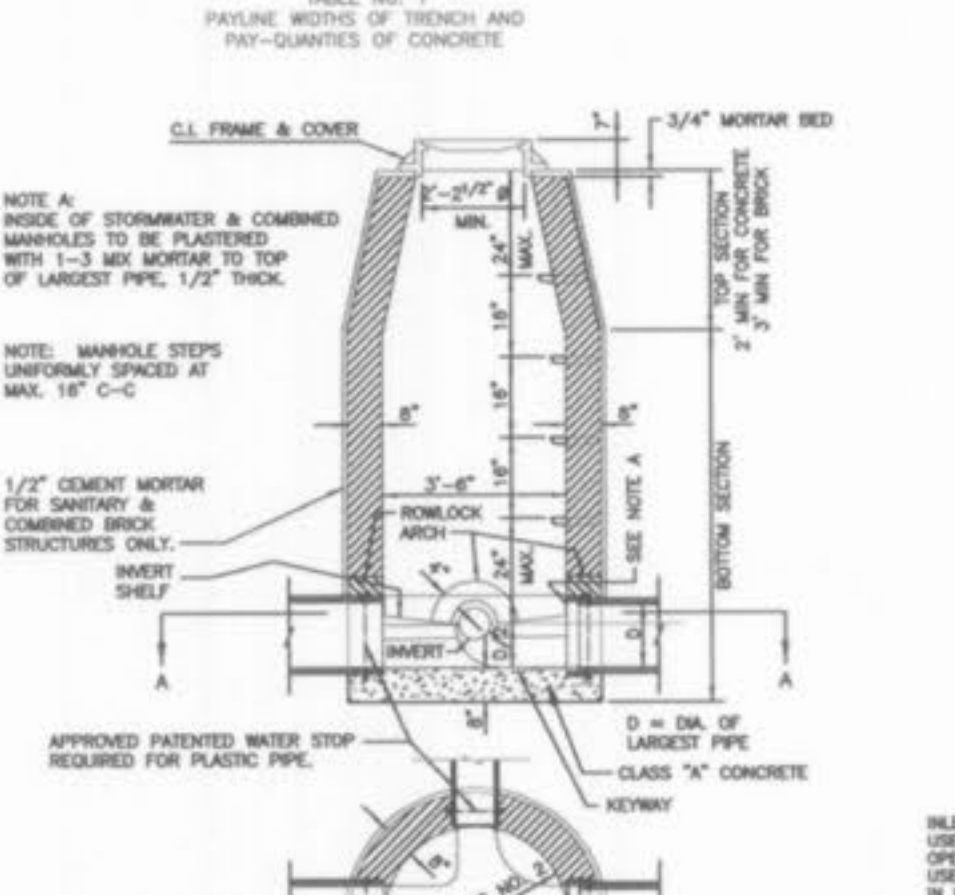
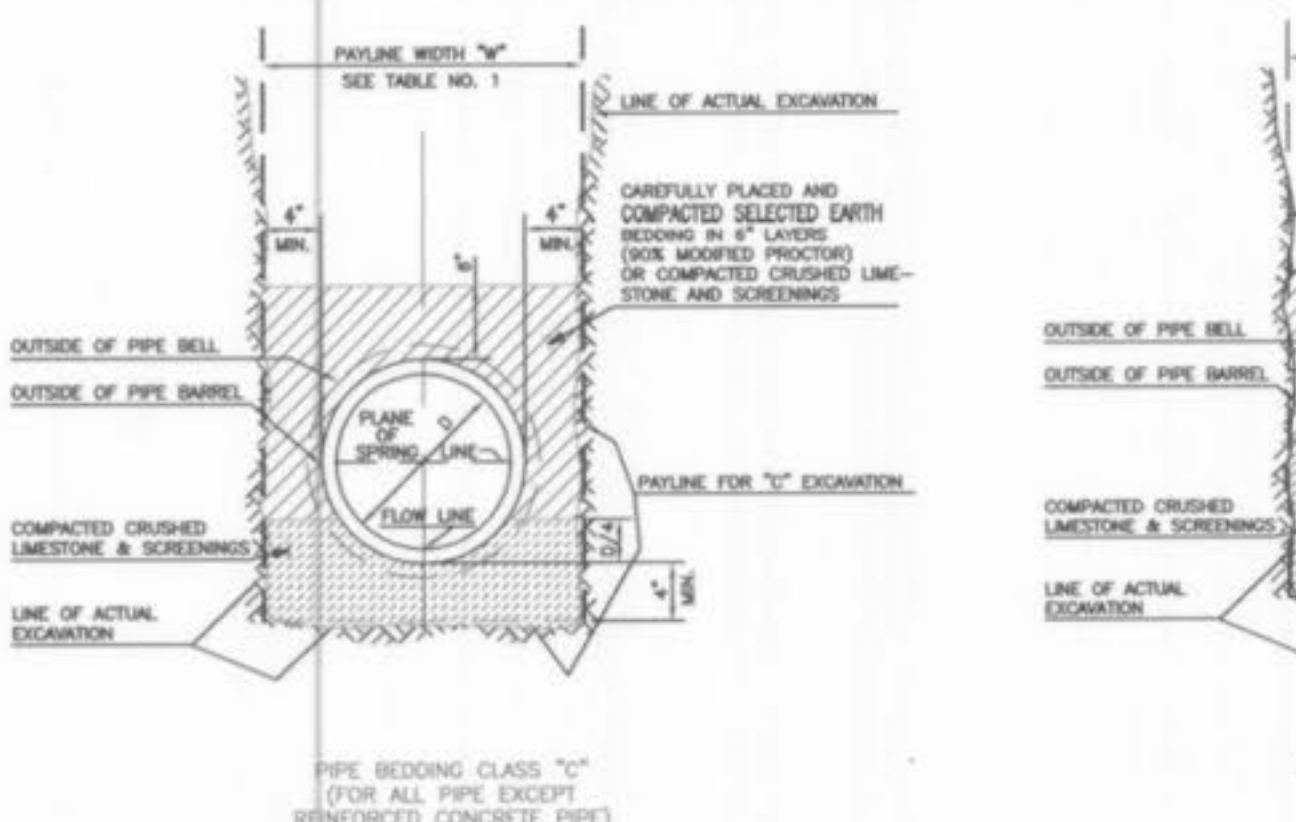
Call BEFORE you DIG
TOLL FREE
1-800-344-7483

BENCH MARKS
B.M. RM#727 (USGS) Sq. on north wingwall at east end of Mexico Rd. over Dardenne Creek.
ELEVATION = 462.06
SITE BM 1: "Sq." on the concrete base of the west gate post at the center entrance to Fort Zumwalt North High School
40'± south of the centerline of Tom Ginnover Ave.
ELEVATION = 497.89

NOTE
Underground utilities and structures have been plotted from available information and therefore their location must be considered approximate only. It is the responsibility of the individual contractor to verify the utility companies before actual construction.

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ROUND PIPE	HORIZONTAL ELLIPTICAL PIPE		Pipe Volume (cu ft. per ft. length)
	Outside Diameter (in.)	Inside Diameter (in.)	
4	28	23.5	3.20
6	28	23.5	3.40
8	28	23.5	3.70
10	28	23.5	3.98
12	28	23.5	4.28
15	32	28.0	4.86
18	32	28.0	5.64
21	32	28.0	6.42
24	42	35.0	7.56
27	42	35.0	8.82
30	42	35.0	10.08
33	53	44.0	10.53
36	56	47.0	11.43
39	61	52.0	12.48
42	63	52.5	13.30
45	70	58.0	14.85
48	70	58.0	15.87
51	77	64.0	17.10
54	84	70.0	18.48
57	84	70.0	19.49
60	94	78.0	20.82
63	94	78.0	21.83
66	94	78.0	22.84
69	104	86.0	24.21
72	104	86.0	25.22
75	104	86.0	26.23
78	114	94.0	27.60
81	114	94.0	28.61
84	114	94.0	29.62
87	124	102.0	31.00
90	124	102.0	32.01
93	124	102.0	33.02
96	134	110.0	34.39
99	134	110.0	35.40
102	134	110.0	36.41
105	144	118.0	37.78
108	144	118.0	38.79
111	144	118.0	39.80
114	154	126.0	41.17
117	154	126.0	42.18
120	154	126.0	43.19
123	164	134.0	44.56
126	164	134.0	45.57
129	164	134.0	46.58
132	174	142.0	47.95
135	174	142.0	48.96
138	174	142.0	49.97
141	184	150.0	51.34
144	184	150.0	52.35



FENCE HEIGHT	END & CORNER POSTS		LINE POSTS	
	NORMAL HEIGHT	BAR LENGTH	H-1	H-2
5'-0"	1024MM	8'-0"	7'-8"	4'-8 7/8"
6'-0"	1219MM	9'-0"	8'-8"	5'-8 7/8"
7'-0"	1414MM	10'-0"	9'-8"	6'-8 7/8"
8'-0"	1609MM	11'-0"	10'-8"	7'-8 7/8"
9'-0"	1804MM	12'-0"	11'-8"	8'-8 7/8"
10'-0"	2000MM	13'-0"	12'-8"	9'-8 7/8"
11'-0"	2195MM	14'-0"	13'-8"	10'-8 7/8"
12'-0"	2390MM	15'-0"	14'-8"	11'-8 7/8"

BASIN #	DRAINAGE AREA (ACRES)	RISER DIAMETER	BASIN BOTTOM ELEVATION	TOP OF DAM ELEVATION	TOP OF RISER ELEVATION	UPSTREAM FLOWLINE ELEVATION	DOWNSTREAM FLOWLINE ELEVATION	PIPE LENGTH	DISCHARGE VELOCITY	DIAMETER	BASIN CLEANOUT ELEVATION
S-1	2.47	42"	486.20	495.00	492.00	484.67	482.99	38.26'	9.5	18"	489.10
S-2	0.92	-	495.00	498.00	-	-	-	-	-	-	-



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