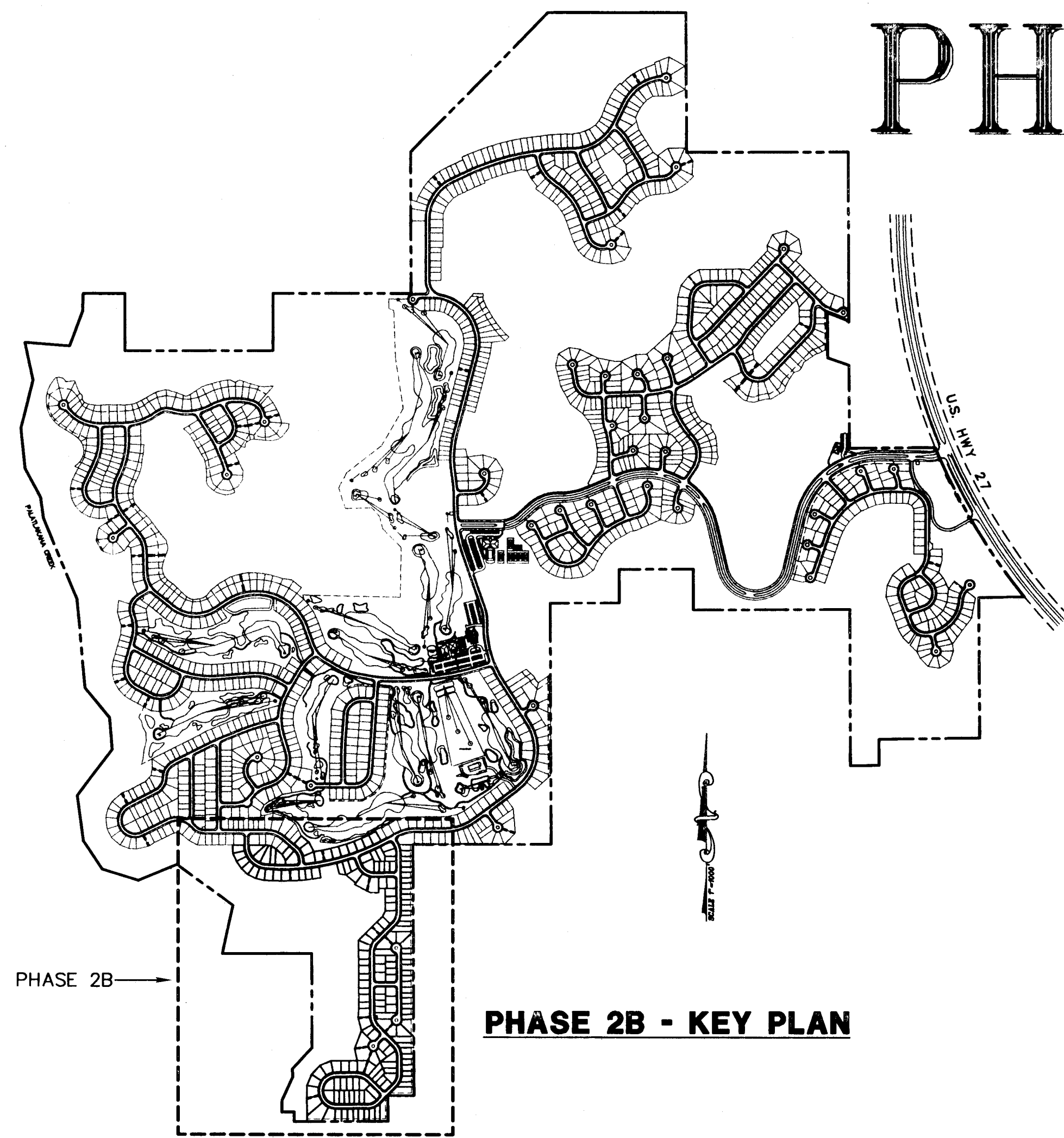
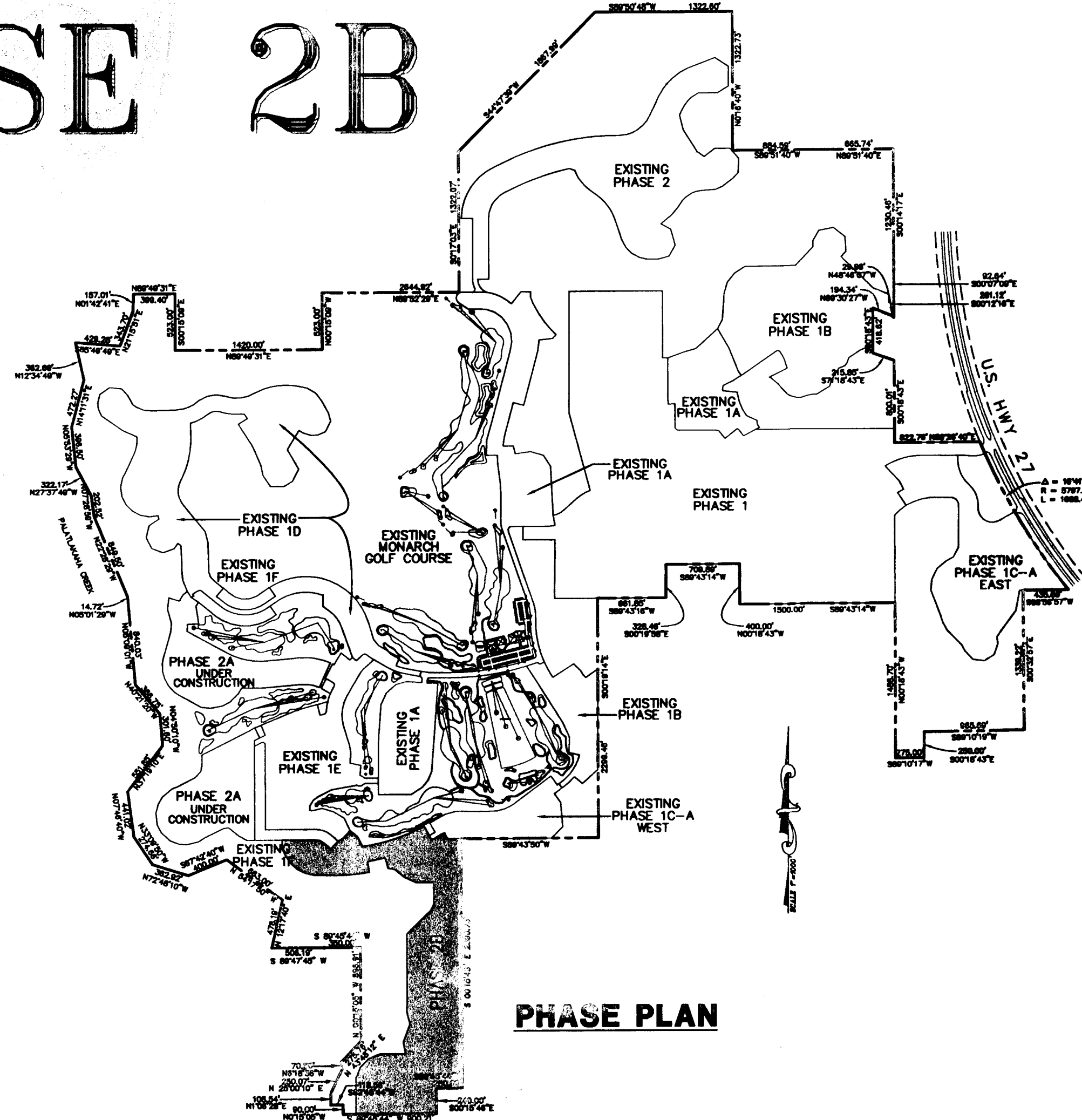


ROYAL HIGHLANDS

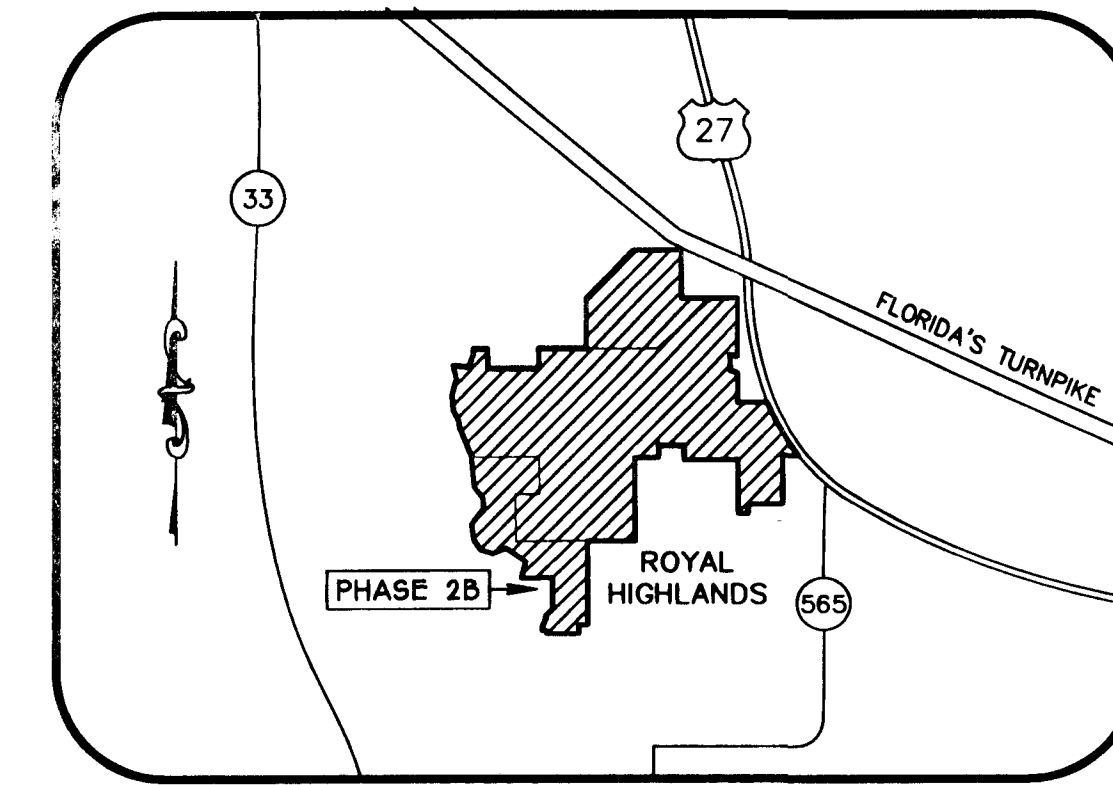
PHASE 2B



PHASE 2B - KEY PLAN



PHASE PLAN



LOCATION MAP

INDEX OF SHEETS	
1	COVER SHEET
2	LOT LAYOUT PLAN
3-5	DRAINAGE/GRADING PLANS
6	UTILITY PLAN
7-11	DETAIL SHEETS
12-18	PLAN & PROFILE SHEETS

SITE DATA - PHASE 2B

TOTAL PROJECT AREA = 1,092 ACRES
 PHASE 2B PROJECT AREA = 54.3 ACRES
 NO. OF PHASE 2B LOTS = 184 SINGLE FAMILY UNITS
 MIN. LOT AREA = 4,992 SQ.FT.
 ZONING = "PUD"
 SETBACKS: FRONT = 15 FEET
 SIDE = 5 FEET
 REAR = 15 FEET
 WATER SERVICE - CITY OF LEESBURG
 SEWER SERVICE - CITY OF LEESBURG
 SOILS - SEE SOILS REPORT

ACREAGE OF WETLANDS TO BE PLACED
 IN CONSERVATION EASEMENT = 1.3± ACRES
 ACREAGE OF UPLAND BUFFER TO BE
 PROTECTED BY DEED RESTRICTIONS = 6.9± ACRES

DEVELOPMENT NOTES

OVERALL MASTER DRAINAGE SYSTEM DESIGNED BY HARTMAN & ASSOCIATES, INC. ST. JOHNS PERMIT NO. 4-069-0301.

CONTRACTOR SHALL VERIFY ALL ELEVATIONS PRIOR TO CONSTRUCTION AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER.

CONTRACTOR SHALL LOCATE AND MAINTAIN IN GOOD WORKING ORDER ALL ABOVE GROUND AND BELOW GROUND UTILITIES. CONTRACTOR SHALL COORDINATE THE RELOCATION OR ALTERATION OF EXISTING UTILITIES AS MAY BE REQUIRED.

WATER UTILITY CONNECTIONS SHALL BE COORDINATED THROUGH THE CITY OF LEESBURG.

ALL SUB-BASE, BASE AND ASPHALTIC CONCRETE PAVING SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LAKE COUNTY PUBLIC SERVICES DEPARTMENT.

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH F.D.O.T. STANDARD SPECIFICATIONS, LAKE COUNTY PUBLIC SERVICES DEPARTMENT, SOUTHERN STANDARD BUILDING CODE, AND ALL OTHER APPLICABLE CODES.

ALL DISTURBED OPEN AREAS SHALL BE SOODED, SEEDED AND MULCHED OR OTHERWISE STABILIZED TO PREVENT EROSION IMMEDIATELY FOLLOWING COMPLETION OF THE SITE CONSTRUCTION.

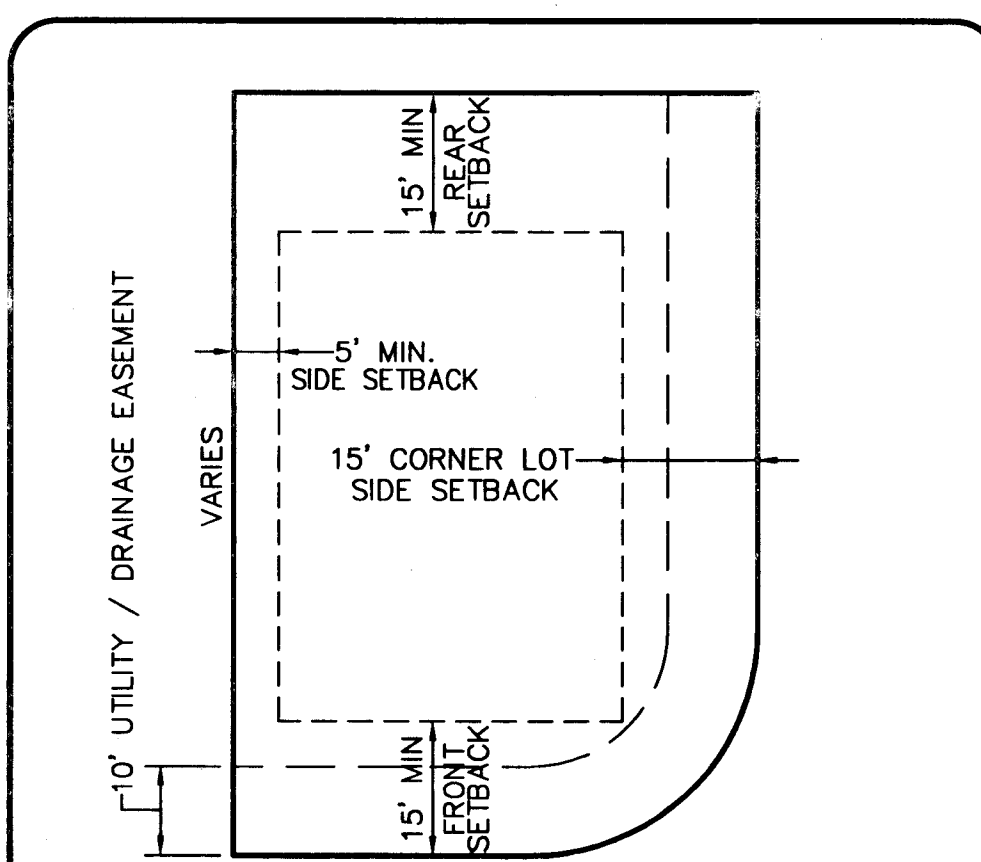
CONTRACTOR SHALL SUPPLY THE ENGINEER WITH "AS-BUILT" CONDITIONS OF ACTUAL CONSTRUCTION.

REMOVAL OF TREES SHALL BE AS DIRECTED BY THE OWNER. CONTRACTOR SHALL OBTAIN TREE REMOVAL PERMIT PRIOR TO CONSTRUCTION (IF APPLICABLE).

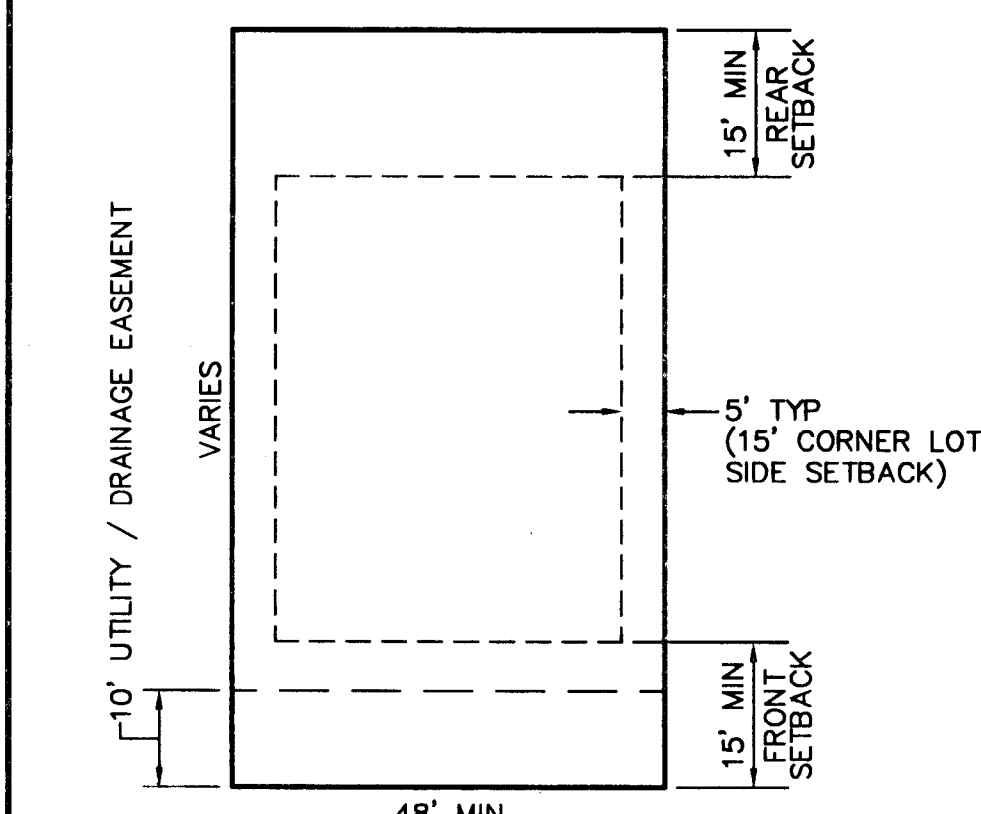
TREES TO REMAIN SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 9.01.09 OF THE LAKE COUNTY LDR'S.

EACH FINISHED LOT TO HAVE 3 TO 6 TREES (DEPENDING ON LOT SIZE) IN ACCORDANCE WITH LAKE COUNTY LDR'S PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.

MAINTENANCE ENTITY: ROYAL HIGHLANDS PROPERTY OWNERS ASSOCIATION



TYPICAL CORNER LOT LAYOUT



TYPICAL LOT LAYOUT

ROYAL HIGHLANDS LEGAL DESCRIPTION

THAT PART OF SECTIONS 12, 13, AND 14, OF TOWNSHIP 21 SOUTH, RANGE 24 EAST, IN LAKE COUNTY, FLORIDA, AND THAT PART OF SECTION 18, TOWNSHIP 21 SOUTH, RANGE 25 EAST, IN LAKE COUNTY, FLORIDA, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGIN AT THE NORTHWEST CORNER OF SAID SECTION 13, TOWNSHIP 21 SOUTH, RANGE 24 EAST, AND RUN N.89°52'29"E. ALONG THE NORTH LINE OF THE N.W. 1/4 OF SAID SECTION 13 A DISTANCE OF 2644.92 FEET TO THE NORTHEAST CORNER OF THE N.W. 1/4 OF SAID SECTION 13; THENCE N.89°52'29"E. ALONG THE NORTH LINE OF THE N.E. 1/4 OF SAID SECTION 13 A DISTANCE OF 639.36 FEET; THENCE N.49°40'01"E. 2049.29 FEET TO A POINT ON THE NORTH LINE OF THE S.E. 1/4 OF THE S.E. 1/4 OF THE AFOREMENTIONED SECTION 12, TOWNSHIP 21 SOUTH, RANGE 24 EAST; THENCE N.89°51'40"E. ALONG THE NORTH LINE OF THE S.E. 1/4 OF THE S.E. 1/4 OF SAID SECTION 12 A DISTANCE OF 665.74 FEET TO A POINT ON THE EAST LINE OF THE S.E. 1/4 OF SAID SECTION 12; THENCE S.00°14'17"E. ALONG THE EAST LINE OF THE S.E. 1/4 OF SAID SECTION 12 A DISTANCE OF 1230.46 FEET; THENCE CONTINUE S.00°07'09"E. ALONG THE EAST LINE OF THE S.E. 1/4 OF SAID SECTION 12 A DISTANCE OF 92.64 FEET TO THE SOUTHEAST CORNER OF SAID SECTION 12, SAID POINT ALSO BEING THE NORTHEAST CORNER OF THE AFOREMENTIONED SECTION 13; THENCE S.00°12'16"E. ALONG THE EAST LINE OF THE N.E. 1/4 OF SAID SECTION 13 A DISTANCE OF 261.12 FEET; THENCE N.48°48'07"W. 29.98 FEET; THENCE N.69°30'27"W. 184.34 FEET; THENCE S.00°18'43"E. 418.69 FEET; THENCE S.71°18'43"E. 215.85 FEET TO A POINT ON THE EAST LINE OF THE N.E. 1/4 OF THE AFOREMENTIONED SECTION 13; THENCE S.00°18'43"E. ALONG THE EAST LINE OF THE N.E. 1/4 OF SAID SECTION 13 A DISTANCE OF 800.01 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH 1200 FEET OF GOVERNMENT LOT 1 OF THE AFOREMENTIONED SECTION 18, TOWNSHIP 21 SOUTH, RANGE 25 EAST; THENCE N.89°26'40"E. ALONG THE SOUTH LINE OF THE NORTH 1200 FEET OF SAID GOVERNMENT LOT 1 A DISTANCE OF 822.78 FEET TO A POINT ON THE SOUTHWESTERLY RIGHT-OF-WAY LINE OF U.S. HIGHWAY NO. 27, SAID POINT BEING ON A CURVE CONCAVE NORTHEASTERLY AND HAVING A RADIUS OF 5797.65 FEET AND A RADIAL BEARING OF S.67°45'52"W. THENCE SOUTHEASTERLY ALONG THE ARC OF SAID CURVE AND SAID SOUTHWESTERLY RIGHT-OF-WAY LINE THROUGH A CENTRAL ANGLE OF 16°41'09" AN ARC LENGTH OF 1688.41 FEET TO A POINT ON THE SOUTH LINE OF GOVERNMENT LOT 2 IN THE AFOREMENTIONED SECTION 18, TOWNSHIP 21 SOUTH, RANGE 25 EAST; THENCE S.88°56'57"W. ALONG THE SOUTH LINE OF SAID GOVERNMENT LOT 2 A DISTANCE OF 435.89 FEET TO A POINT ON THE EAST LINE OF THE WEST 1/2 OF GOVERNMENT LOT 3 OF SAID SECTION 18; THENCE S.00°52'52"E. ALONG THE EAST LINE OF THE WEST 1/2 OF GOVERNMENT LOT 3 A DISTANCE OF 1339.22 FEET TO A POINT ON THE SOUTH LINE OF SAID GOVERNMENT LOT 3; THENCE S.89°10'19"W. ALONG THE SOUTH LINE OF SAID GOVERNMENT LOT 3, 955.69 FEET TO A POINT ON THE EAST LINE OF THE WEST 275 FEET OF GOVERNMENT LOT 4 OF SAID SECTION 18; THENCE S.00°18'43"E. ALONG THE EAST LINE OF THE WEST 275 FEET OF SAID GOVERNMENT LOT 4 A DISTANCE OF 250.00 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH 250 FEET OF THE WEST 275 FEET OF SAID GOVERNMENT LOT 4; THENCE S.89°10'19"W. ALONG THE SOUTH LINE OF THE NORTH 250 FEET OF THE WEST 275 FEET OF SAID GOVERNMENT LOT 4 A DISTANCE OF 275 FEET TO A POINT ON THE WEST LINE OF THE S.W. 1/4 OF SAID SECTION 18; THENCE N.00°18'43"W. ALONG THE WEST LINE OF THE S.W. 1/4 A DISTANCE OF 1488.70 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH 400 FEET OF THE N.E. 1/4 OF THE S.E. 1/4 OF SAID AFOREMENTIONED SECTION 13 OF TOWNSHIP 21 SOUTH, RANGE 24 EAST; THENCE S.89°43'14"W. ALONG THE SOUTH LINE OF THE NORTH 400 FEET

OF THE N.E. 1/4 OF THE S.E. 1/4 A DISTANCE OF 1500.00 FEET TO A POINT ON THE WEST LINE OF THE EAST 1500 FEET OF THE N.E. 1/4 OF THE S.E. 1/4 OF SAID SECTION 13; THENCE N.00°18'43"W. ALONG THE WEST LINE OF THE EAST 1500 FEET OF THE N.E. 1/4 OF THE S.E. 1/4 A DISTANCE OF 4000 FEET TO A POINT ON THE NORTH LINE OF THE S.E. 1/4 OF SAID SECTION 13; THENCE S.89°43'14"W. ALONG THE NORTH LINE OF THE S.E. 1/4 A DISTANCE OF 709.89 FEET TO A POINT ON THE EAST LINE OF THE N.W. 1/4 OF THE N.W. 1/4 OF THE S.E. 1/4 OF SAID SECTION 13; THENCE S.00°19'58"E. ALONG THE EAST LINE OF THE N.W. 1/4 OF THE N.W. 1/4 OF THE S.E. 1/4 A DISTANCE OF 328.46 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH 1/2 OF THE N.W. 1/4 OF THE N.W. 1/4 OF THE S.E. 1/4 OF SAID SECTION 13; THENCE S.89°43'16"W. ALONG THE SOUTH LINE OF THE NORTH 1/2 OF THE N.W. 1/4 OF THE N.W. 1/4 OF THE S.E. 1/4 OF SAID SECTION 13 A DISTANCE OF 861.85 FEET TO A POINT ON THE EAST LINE OF THE S.W. 1/4 OF SAID SECTION 13; THENCE S.00°19'14"E. ALONG THE EAST LINE OF THE S.W. 1/4 OF SAID SECTION 13 A DISTANCE OF 2299.46 FEET TO THE SOUTHEAST CORNER OF THE S.W. 1/4 OF SAID SECTION 13; THENCE S.89°34'50"W. ALONG THE SOUTH LINE OF THE S.W. 1/4 A DISTANCE OF 2648.37 FEET TO THE SOUTHWEST CORNER OF SAID SECTION 13; THENCE S.89°44'30"W. ALONG THE SOUTH LINE OF THE AFOREMENTIONED SECTION 14 OF TOWNSHIP 21 SOUTH, RANGE 24 EAST. A DISTANCE OF 885.18 FEET TO A POINT ON THE WEST LINE OF THE EAST 1/2 OF THE S.E. 1/4 OF THE S.E. 1/4 OF SAID SECTION 14; THENCE N.00°17'35"W. ALONG THE WEST LINE OF THE EAST 1/2 OF THE S.E. 1/4 OF THE S.E. 1/4 OF SAID SECTION 14; THENCE S.89°48'00"W. ALONG THE NORTH LINE OF THE SOUTH 2335 FEET OF THE EAST 1/2 OF SAID SECTION 14; THENCE S.89°48'00"W. ALONG THE NORTH LINE OF THE SOUTH 2335 FEET OF THE EAST 1/2 OF SAID SECTION 14 A DISTANCE OF 1884.31 FEET TO A POINT ON THE CENTERLINE OF THE PALATKAHAKA CREEK; THENCE NORTHERLY ALONG SAID CENTERLINE THE FOLLOWING 10 (TEN) COURSES: THENCE N.05°01'29"W. 14.72 FEET; THENCE N.22°28'29"W. 849.50 FEET; THENCE N.07°29'59"W. 202.52 FEET; THENCE N.27°37'49"W. 322.17 FEET; THENCE N.05°53'29"W. 396.50 FEET; THENCE N.14°11'31"E. 472.27 FEET; THENCE N.12°34'49"W. 362.69 FEET; THENCE S.85°04'49"E. 429.28 FEET; THENCE N.21°15'51"E. 343.70 FEET; THENCE N.01°42'41"E. 157.01 FEET TO A POINT ON THE NORTH LINE OF THE N.E. 1/4 OF THE AFOREMENTIONED SECTION 14; THENCE LEAVING SAID CENTERLINE RUN N.89°49'31"E. ALONG THE NORTH LINE OF THE N.E. 1/4 OF SAID SECTION 14 A DISTANCE OF 399.40 FEET TO A POINT ON THE WEST LINE OF THE EAST 1420 FEET OF THE EAST 1/2 OF SAID SECTION 14; THENCE S.00°15'09"E. ALONG THE WEST LINE OF THE EAST 1420 FEET OF THE EAST 1/2 OF SAID SECTION 14 A DISTANCE OF 523.00 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH 523 FEET OF THE EAST 1420 FEET OF THE EAST 1/2 OF SAID SECTION 14; THENCE N.89°49'31"E. ALONG THE SOUTH LINE OF THE NORTH 523 FEET OF THE EAST 1420 FEET OF THE EAST 1/2 OF SAID SECTION 14 A DISTANCE OF 1420.00 FEET TO A POINT ON THE EAST LINE OF THE N.E. 1/4 OF SAID SECTION 14; THENCE N.00°15'09"W. ALONG THE EAST LINE OF THE N.E. 1/4 A DISTANCE OF 523.00 FEET TO THE POINT OF BEGINNING.

ALL OF THE ABOVE IS SUBJECT TO ALL EASEMENTS, RIGHTS-OF-WAY AND RESTRICTIONS OF RECORD, IF ANY.

APPLICANT / OWNER / ENGINEER / SURVEYOR

APPLICANT
 JIM DEITCH, DIRECTOR OF OPERATIONS
 ROYAL HIGHLANDS PROPERTY OWNERS ASSOCIATION, INC.
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 LEESBURG, FL 34748
 PHONE (352) 365-2303
 FAX (352) 365-6221

OWNER
 JOHN PRINGLE, PRESIDENT
 PRINGLE COMMUNITIES, INC.
 26600 ACE AVENUE
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ENGINEER
 KEITH E. RIDDLE, P.E.
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 115 NORTH CANAL STREET
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SURVEYOR
 GEORGE W. FARNER, JR.
 HALL, FARNER & ASSOCIATES, INC.
 2007 W. BUTLER ST.
 LEESBURG, FL 34748
 PHONE (352) 787-5115
 FAX (352) 787-0767

AS BUILT

KEITH E. RIDDLE, P.E.
 FLA. REGS. NO. 38800
 DATE 7/24/04

FINAL AS-BUILTS PER CONTRACTOR 2/19/04
 SEWER AND PARTIAL WATER AS-BUILT PER CONTRACTOR 2/19/04

REV #1 REVISED PER SURVIM 12/3/02
 REV #2 REVISED PER SURVIM 12/3/02
 REV #3 REVISED PER SURVIM 12/3/02
 REV #4 REVISED PER SURVIM 12/3/02
 REV #5 REVISED PER SURVIM 12/3/02
 REV #6 REVISED PER SURVIM 12/3/02
 REV #7 REVISED PER SURVIM 12/3/02
 REV #8 REVISED PER SURVIM 12/3/02
 REV #9 REVISED PER SURVIM 12/3/02
 REV #10 REVISED PER SURVIM 12/3/02
 REV #11 REVISED PER SURVIM 12/3/02
 REV #12 REVISED PER SURVIM 12/3/02
 REV #13 REVISED PER SURVIM 12/3/02
 REV #14 REVISED PER SURVIM 12/3/02
 REV #15 REVISED PER SURVIM 12/3/02
 REV #16 REVISED PER SURVIM 12/3/02
 REV #17 REVISED PER SURVIM 12/3/02
 REV #18 REVISED PER SURVIM 12/3/02

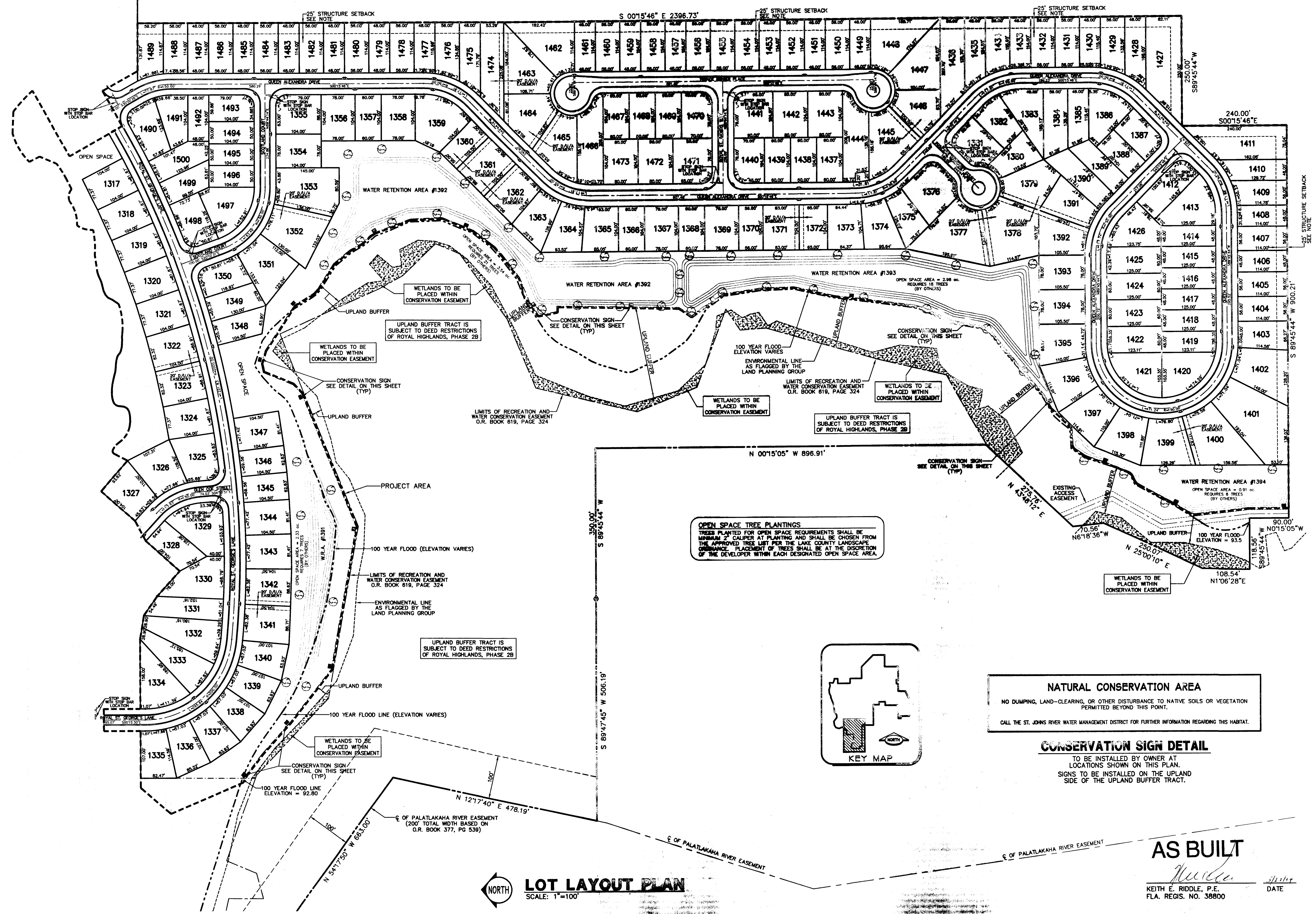
CONSTRUCTION PLANS
 ROYAL HIGHLANDS - PHASE 2B
 FLORIDA
 LAKE COUNTY

SHEET NO.
 1
 18

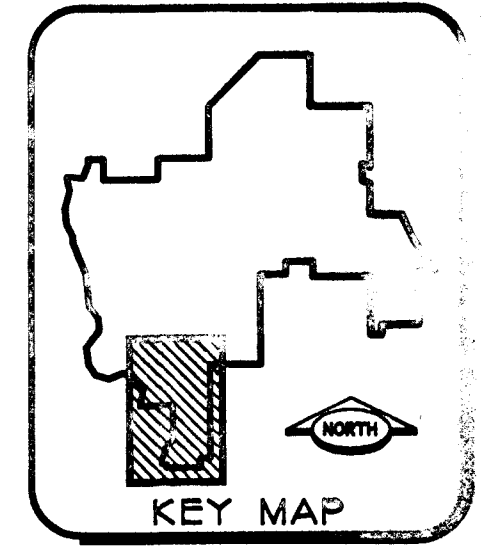
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 keith@riddle-n.com



25' STRUCTURE SETBACK NOTE:
 LOT NOS. 1401-1411 & 1427-1433 & 1447-1463 & 1474-1489
 SHALL MAINTAIN A 25 FOOT STRUCTURE SETBACK FROM
 THE PUD BOUNDARY / PROPERTY LINE.



OPEN SPACE TREE PLANTINGS
 TREES PLANTED FOR OPEN SPACE REQUIREMENTS SHALL BE
 MINIMUM 2" CALIPER AT PLANTING AND SHALL BE CHOSEN FROM
 THE APPROVED TREE LIST FOR THE LAKE COUNTY LANDSCAPE
 GUIDANCE. PLACEMENT OF TREES SHALL BE AT THE DISCRETION
 OF THE DEVELOPER WITHIN EACH DESIGNATED OPEN SPACE AREA.



NATURAL CONSERVATION AREA
 NO DUMPING, LAND-CLEARING, OR OTHER DISTURBANCE TO NATIVE SOILS OR VEGETATION
 PERMITTED BEYOND THIS POINT.
 CALL THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT FOR FURTHER INFORMATION REGARDING THIS HABITAT.

CONSERVATION SIGN DETAIL
 TO BE INSTALLED BY OWNER AT
 LOCATIONS SHOWN ON THIS PLAN.
 SIGNS TO BE INSTALLED ON THE UPLAND
 SIDE OF THE UPLAND BUFFER TRACT.

LOT LAYOUT PLAN
 SCALE: 1"=100'

AS BUILT
 KEITH E. RIDDLER, P.E.
 FLA. REGIS. NO. 38800
 DATE

12/03/2002 11:10:00 AM

FILE: \93092-2B\RL-PH-2B-02X

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PRELIMINARY PLAT

ROYAL HIGHLANDS - PHASE 2B

LAKE COUNTY
 FLORIDA

SHEET NO.
 2
 18

RIDDLE - NEWMAN ENGINEERING, INC.
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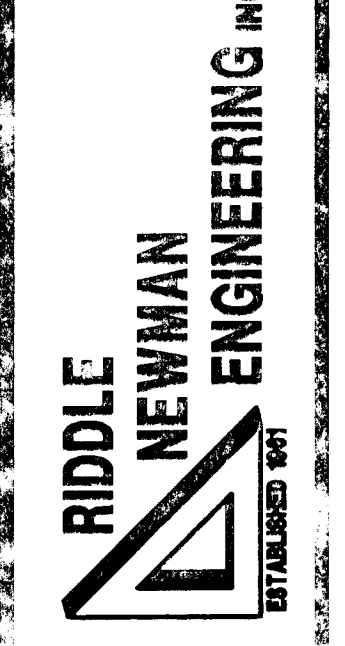
REV #5	R.S.H.
REV #4	CHECKED K.E.R.
REV #3	SCALE: 1"=100'
REV #2	DATE: 5/3/02
REV #1	PROJECT NO. 93092

REVISED PER SRWMD 12/3/02
 REVISED LOTS 1352 & 1353 7/26/02
 REVISED PER LAKE COUNTY & SRWMD 7/10/02

03/16/2004 09:58:26 AM



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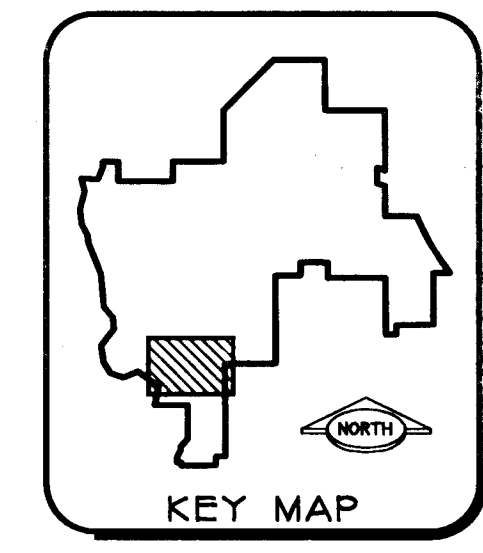


DRAWN	R.S.H.	REV #5
CHECKED	K.E.R.	REV #4
SCALE	1"=60'	REV #3
DATE	5/3/02	REV #2
PROJECT NO.	93092	REV #1

FINAL AS-BUILTS PER CONTRACTOR 2/19/04
 REVISIONS PER LAKE COUNTY & SR/MD 7/10/02

DRAINAGE / GRADING PLAN
ROYAL HIGHLANDS - PHASE 2B
 FLORIDA
 LAKE COUNTY

SHEET NO.
3
 18



DRAINAGE / GRADING PLAN
 SCALE: 1"=60'

AS BUILT
 KEITH E. RIDDLE, P.E.
 FLA. REGIS. NO. 38800
 DATE 3/11/04

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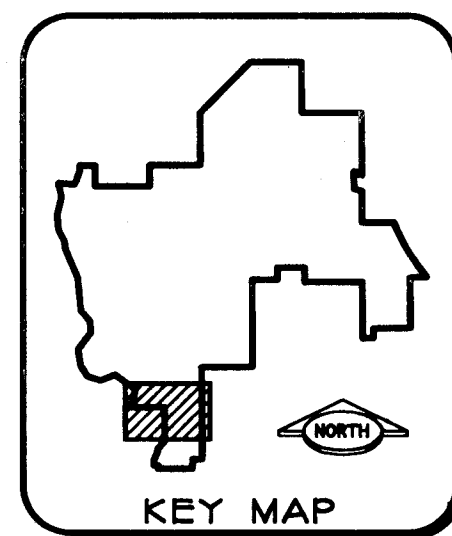
MATCHLINE - SEE SHEET 3

UPLAND BUFFER TRACT IS SUBJECT TO DEED RESTRICTIONS OF ROYAL HIGHLANDS, PHASE 2B

TYPICAL SIDE LOT SWALE NOTE
EACH LOT IS SUBJECT TO A 5' WIDE EASEMENT ON EACH SIDE LOT LINE. THIS EASEMENT SHALL BE UTILIZED FOR A SIDE LOT SWALE AS SHOWN IN DETAIL. THIS SIDE LOT SWALE SHALL BE CONSTRUCTED BY THE HOUSE CONTRACTOR.

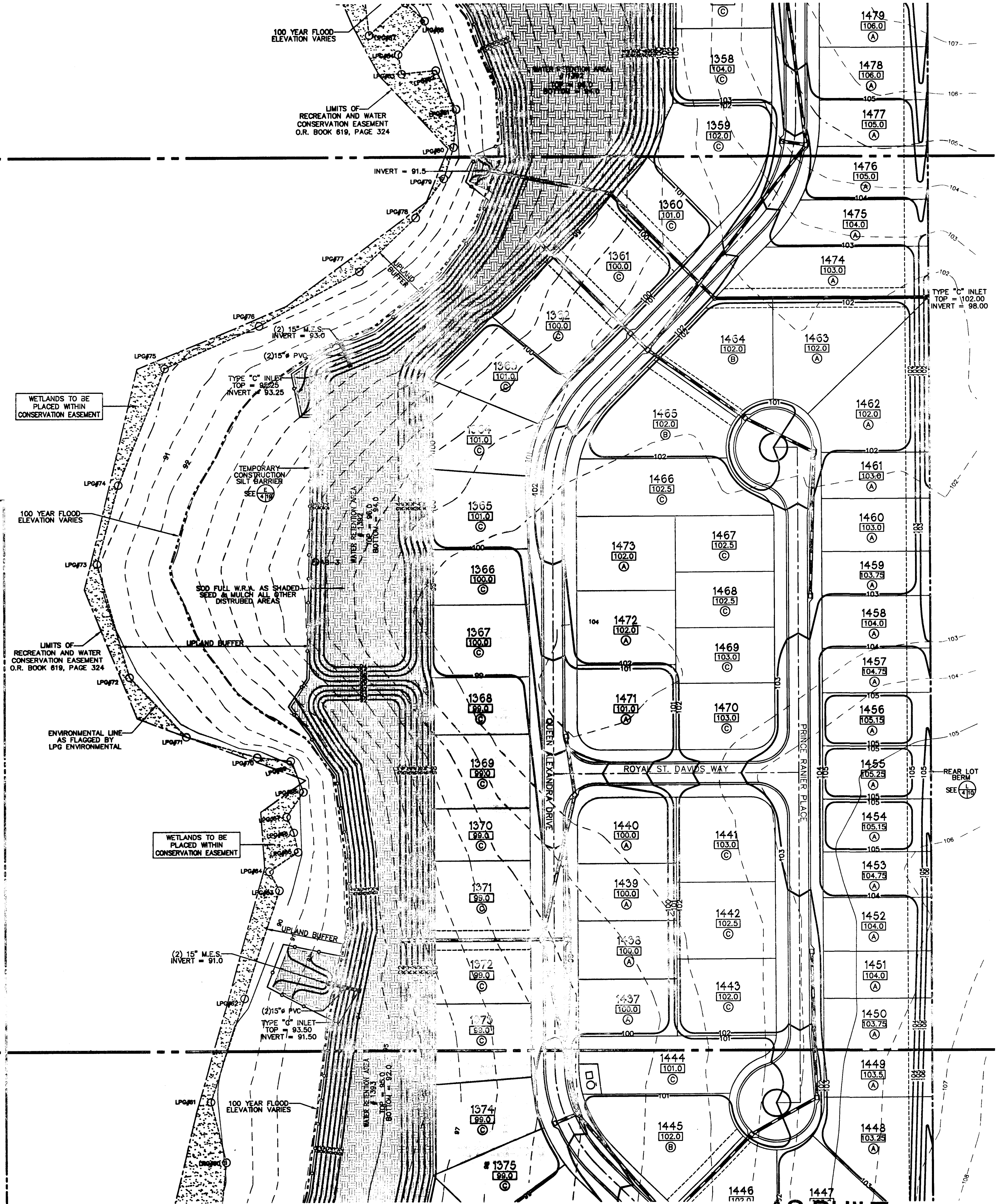


MATCHLINE - SEE SHEET 5



DRAINAGE / GRADING PLAN

SCALE: 1"=60'



AS BUILT

KEITH E. RIDDLE, P.E.
FLA. REGIS. NO. 38800
DATE

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RIDDLE
NEWMAN
ENGINEERING INC.
ESTABLISHED 1971

REV #1	REV #2	REV #3	REV #4
REV #1	REV #2	REV #3	REV #4
DESIGNED R.S.H.	CHECKED K.E.R.	SCALE 1"=60'	DATE 5/3/02
PROJECT NO. 93092		PROJECT PER LAKE COUNTY & SURROUND 7/10/02	

DRAINAGE / GRADING PLAN

ROYAL HIGHLANDS - PHASE 2B
FLORIDA
LAKE COUNTY

FILE: 93092-2B-VH-PH2B-03-05X
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SHEET NO. 4

18

MATCHLINE - SEE SHEET 4

UPLAND BUFFER TRACT IS SUBJECT TO DEED RESTRICTIONS OF ROYAL HIGHLANDS, PHASE 2B

TYPICAL SIDE LOT SWALE NOTE
 EACH LOT IS SUBJECT TO A 5' WIDE EASEMENT ON EACH SIDE LOT LINE. THIS EASEMENT SHALL BE UTILIZED FOR A SIDE LOT SWALE AS SHOWN IN DETAIL. THIS SIDE LOT SWALE SHALL BE CONSTRUCTED BY THE HOUSE CONTRACTOR.

WETLANDS TO BE PLACED WITHIN CONSERVATION EASEMENT
 LIMITS OF RECREATION AND WATER CONSERVATION EASEMENT O.R. BOOK 619, PAGE 324
 TEMPORARY CONSTRUCTION SILT BARRIER
 SEE (S) 110

(2) 15" M.E.S. INVERT = 91.0
 (2) 15" PVC TYPE "G" INLET TOP = 93.50 INVERT = 91.50

100 YEAR FLOOD ELEVATION VARIES
 WATER W/INVENTORY AREA TOP = 95.0 BOTTOM = 92.0

SOD FULL W.R.A. AS SHADED SEED & MULCH ALL OTHER DISTURBED AREAS

ENVIRONMENTAL LINE AS FLAGGED BY LPG ENVIRONMENTAL

EXISTING ACCESS EASEMENT

ENVIRONMENTAL LINE AS FLAGGED BY LPG ENVIRONMENTAL

TEMPORARY CONSTRUCTION SILT BARRIER SEE (S) 110

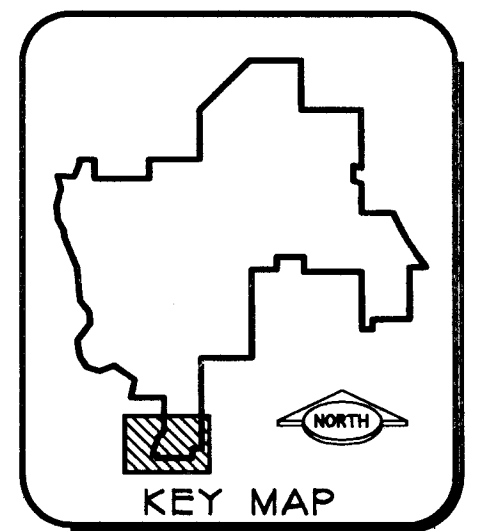
WETLANDS TO BE PLACED WITHIN CONSERVATION EASEMENT

SOD FULL W.R.A. AS SHADED SEED & MULCH ALL OTHER DISTURBED AREAS

100 YEAR FLOOD ELEVATION = 93.5
 W.R.A. TOP = 93.70 BOTTOM = 90.0

COMPENSATING STORAGE AREA NO. 1

REAR LOT BERM SEE (S) 110



DRAINAGE / GRADING PLAN

SCALE: 1"=60'

AS BUILT

KEITH E. RIDDLE, P.E.
 FLA. REGIS. NO. 38800

DATE 3/21/04

DRAINAGE / GRADING PLAN

ROYAL HIGHLANDS - PHASE 2B
 FLORIDA
 LAKE COUNTY

5
 18

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 keith@riddlenewman.com
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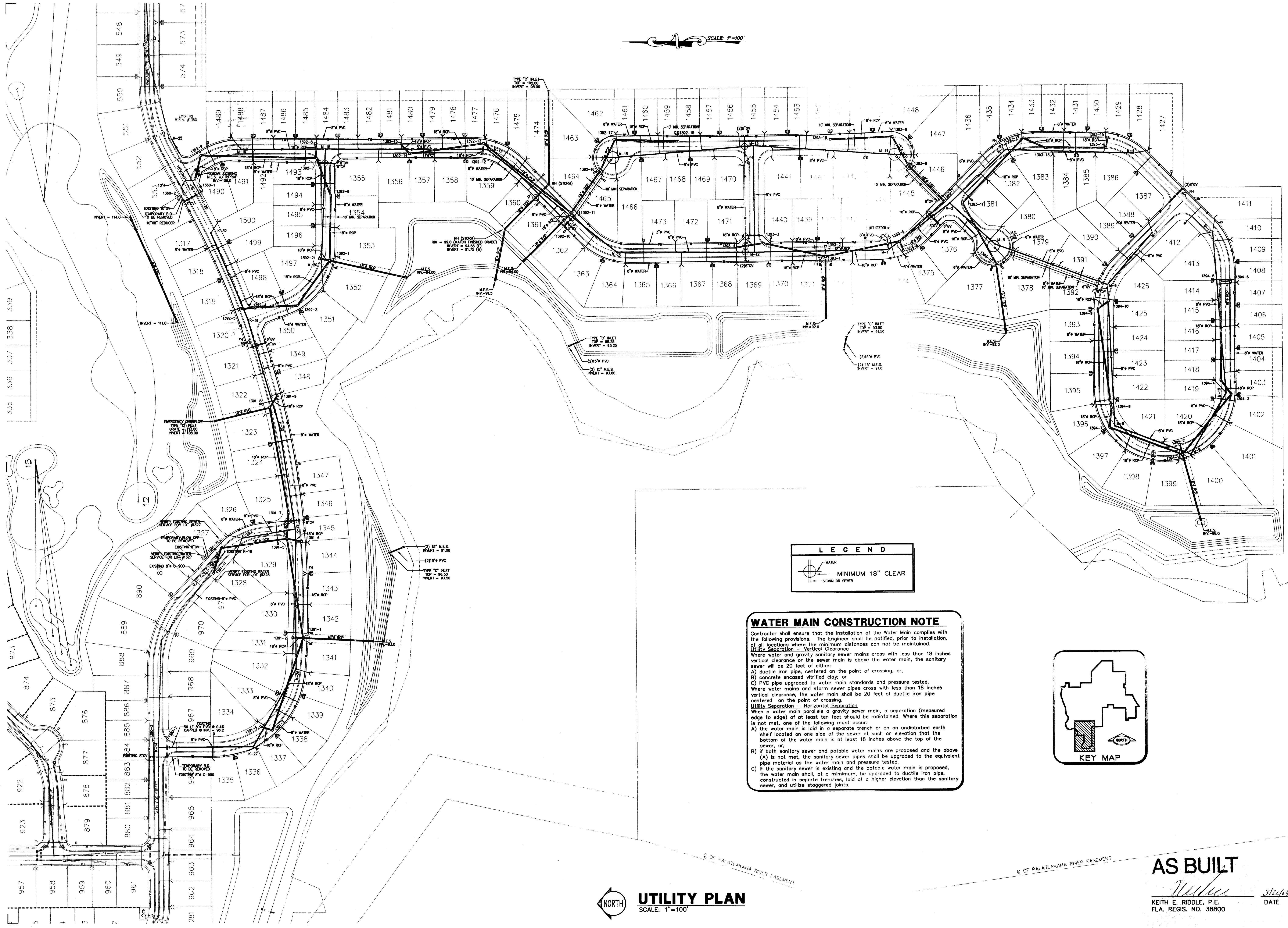


REV 01	REV 02	REV 03	REV 04
5/3/02	7/10/02	2/19/04	
PROJECT NO. 93092	REVISED PER LAKE COUNTY & SRWMD	FINAL AS-BUILTS PER CONTRACTOR	

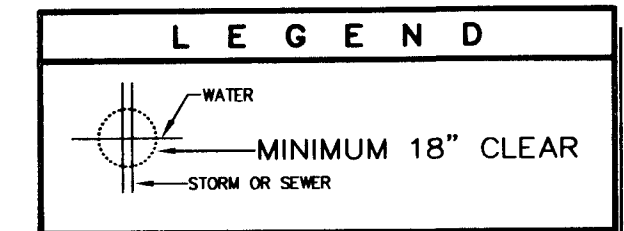
DRAWN: R.S.H.
 CHECKED: K.E.R.
 SCALE: 1"=60'
 DATE: 5/3/02
 PROJECT NO. 93092

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03/16/2004 10:01:02 AM



SCALE: 1"=100'



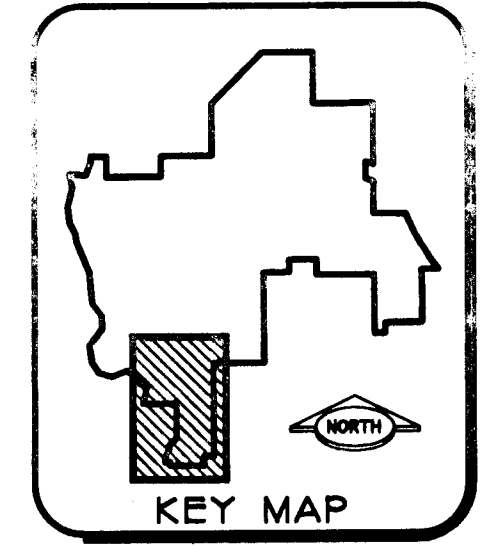
WATER MAIN CONSTRUCTION NOTE

Contractor shall ensure that the installation of the Water Main complies with the following provisions. The Engineer shall be notified, prior to installation, of all locations where the minimum distances can not be maintained.

Utility Separation - Vertical Clearance
 Where water and gravity sanitary sewer mains cross with less than 18 inches vertical clearance or the sewer main is above the water main, the sanitary sewer will be 20 feet of either:
 A) ductile iron pipe, centered on the point of crossing, or;
 B) concrete encased vitrified clay; or
 C) PVC pipe upgraded to water main standards and pressure tested.

Where water mains and storm sewer pipes cross with less than 18 inches vertical clearance, the water main shall be 20 feet of ductile iron pipe centered on the point of crossing.

Utility Separation - Horizontal Separation
 When a water main parallels a gravity sewer main, a separation (measured edge to edge) of at least ten feet should be maintained. Where this separation is not met, one of the following must occur:
 A) the water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer, or;
 B) if both sanitary sewer and potable water mains are proposed and the above (A) is not met, the sanitary sewer pipes shall be upgraded to the equivalent pipe material as the water main and pressure tested.
 C) if the sanitary sewer is existing and the potable water main is proposed, the water main shall, at a minimum, be upgraded to ductile iron pipe, constructed in separate trenches, laid at a higher elevation than the sanitary sewer, and utilize staggered joints.



UTILITY PLAN
 SCALE: 1"=100'

AS BUILT
 Keith E. Riddle, P.E.
 FLA. REGIS. NO. 38800
 DATE

FILE: 93092-2B-RH-PH-2B-08X

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UTILITY PLAN

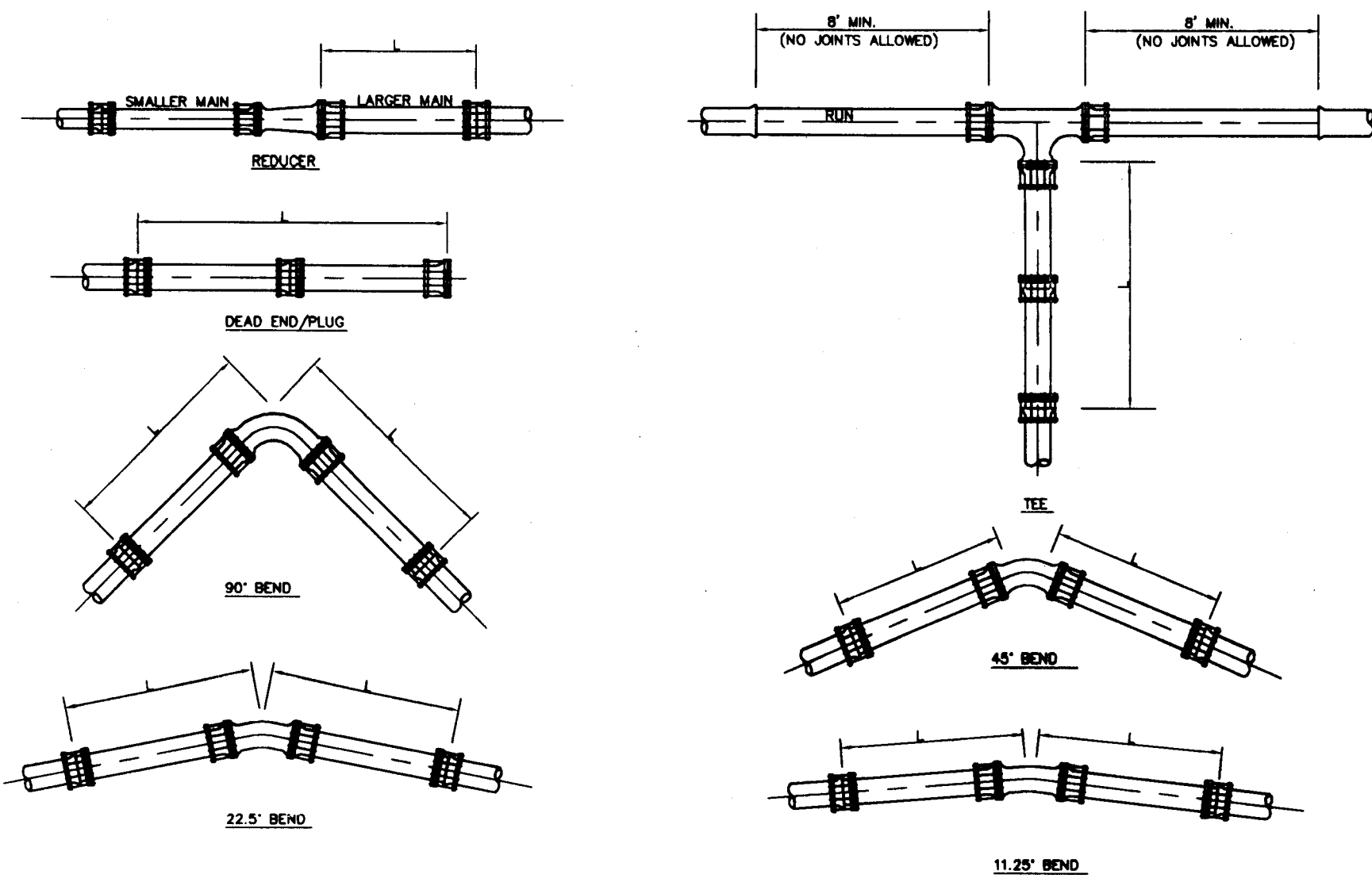
ROYAL HIGHLANDS - PHASE 2B
 FLORIDA
 LAKE COUNTY

RIDDLE - NEWMAN ENGINEERING, INC.
 115 NORTH CANAL STREET
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 PHONE (352) 787-7482
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 keith@riddlenewman.com
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RIDDLE NEWMAN ENGINEERING INC.
 ESTABLISHED 1984

DRAWN	R.S.H.	FINAL AS-BUILTS PER CONTRACTOR	2/19/04
CHECKED	K.E.R.	REVISED FIRE HYDRANT LOCATION	6/19/03
SCALE	1"=100'	REVISED LOTS 1352 & 1353	7/29/02
DATE	5/3/02	REVISED PER LAKE COUNTY & SR/MWD	7/10/02
PROJECT NO.	93092	REVISED WATER PER CITY	6/2/02

SHEET NO. 6 OF 18

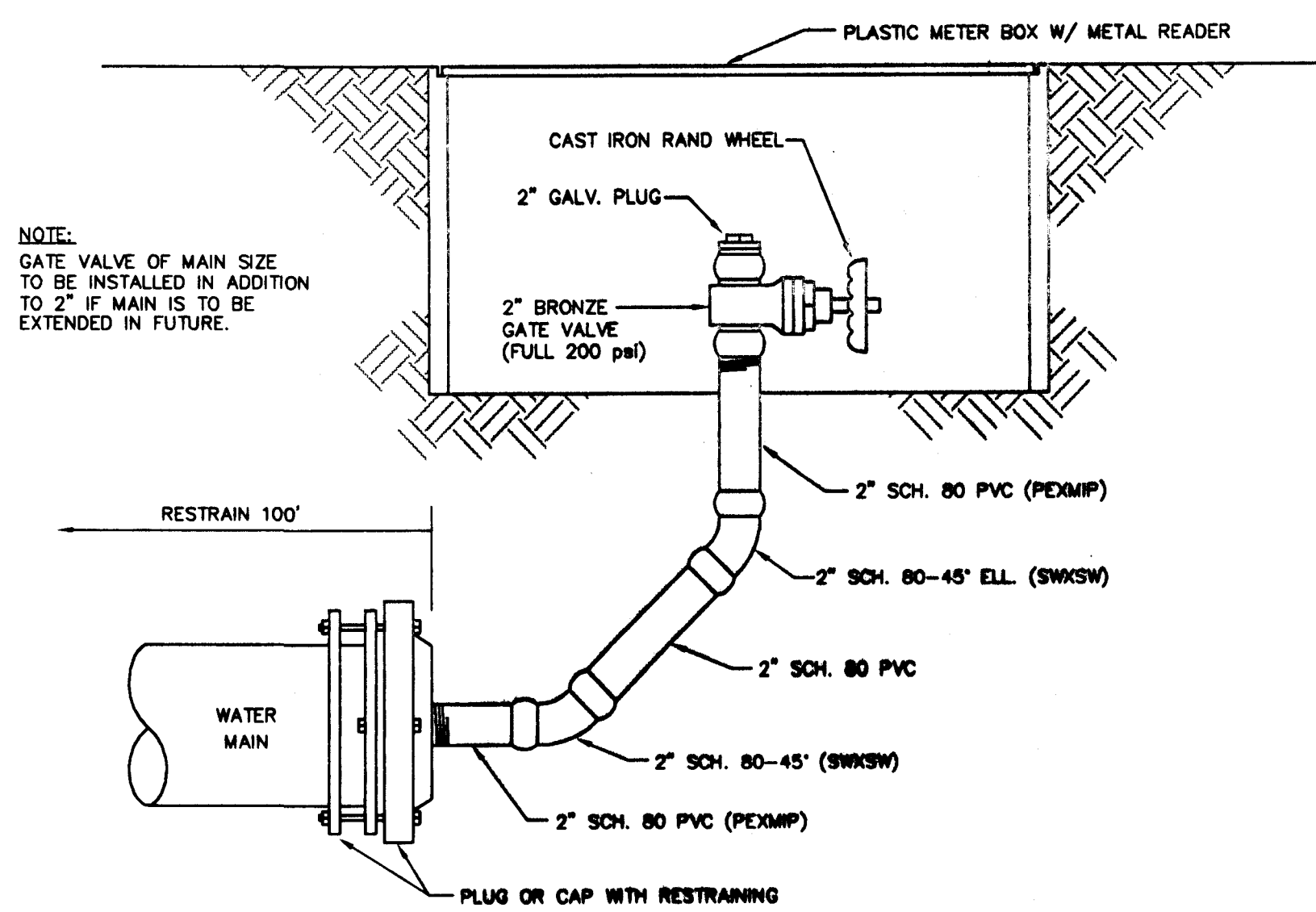


THRUST RESTRAINT DETAILS
N.T.S.

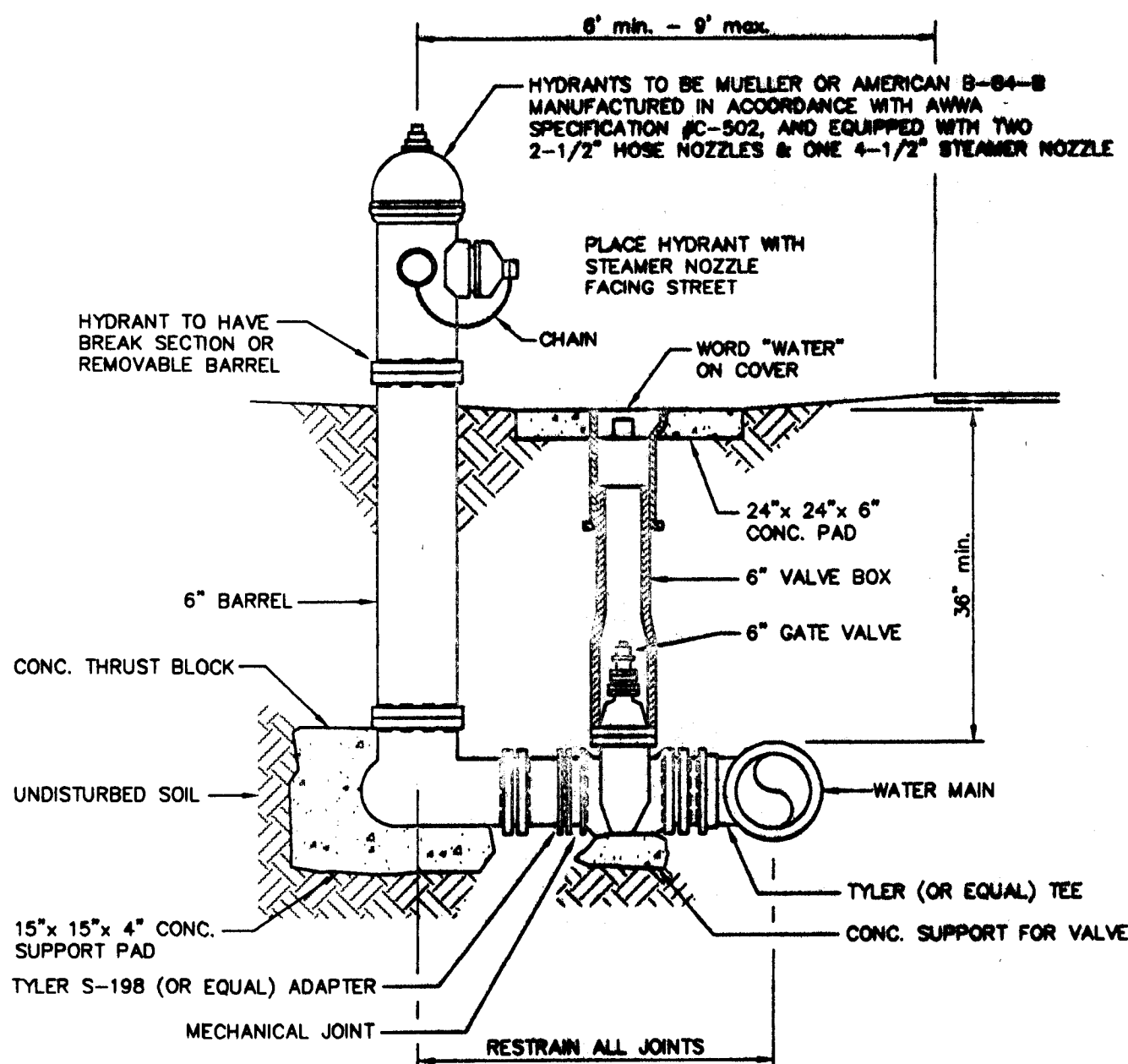
FITTINGS (LENGTH IN FEET)					
(3'-FT. COVER: 200 PSI TEST PRESSURE)					
PIPE SIZE (INCHES)	90° BEND		45° BEND		DEAD END & PLUG
	P.V.C. (L)	P.V.C. (L)	P.V.C. (L)	P.V.C. (L)	
4	40'	20'	20'	20'	40'
6	60'	40'	20'	20'	60'
8	80'	40'	20'	20'	80'
10	80'	40'	20'	20'	80'
12	100'	40'	20'	20'	100'
16	120'	60'	40'	20'	120'

REDUCERS						
SMALL END	LARGE END					
	6"	8"	10"	12"	16"	20"
4"	40'	60'	80'	100'	140'	160'
6"		40'	60'	80'	120'	160'
8"			40'	60'	120'	140'
10"				60'	100'	140'
12"					60'	120'
16"						60'

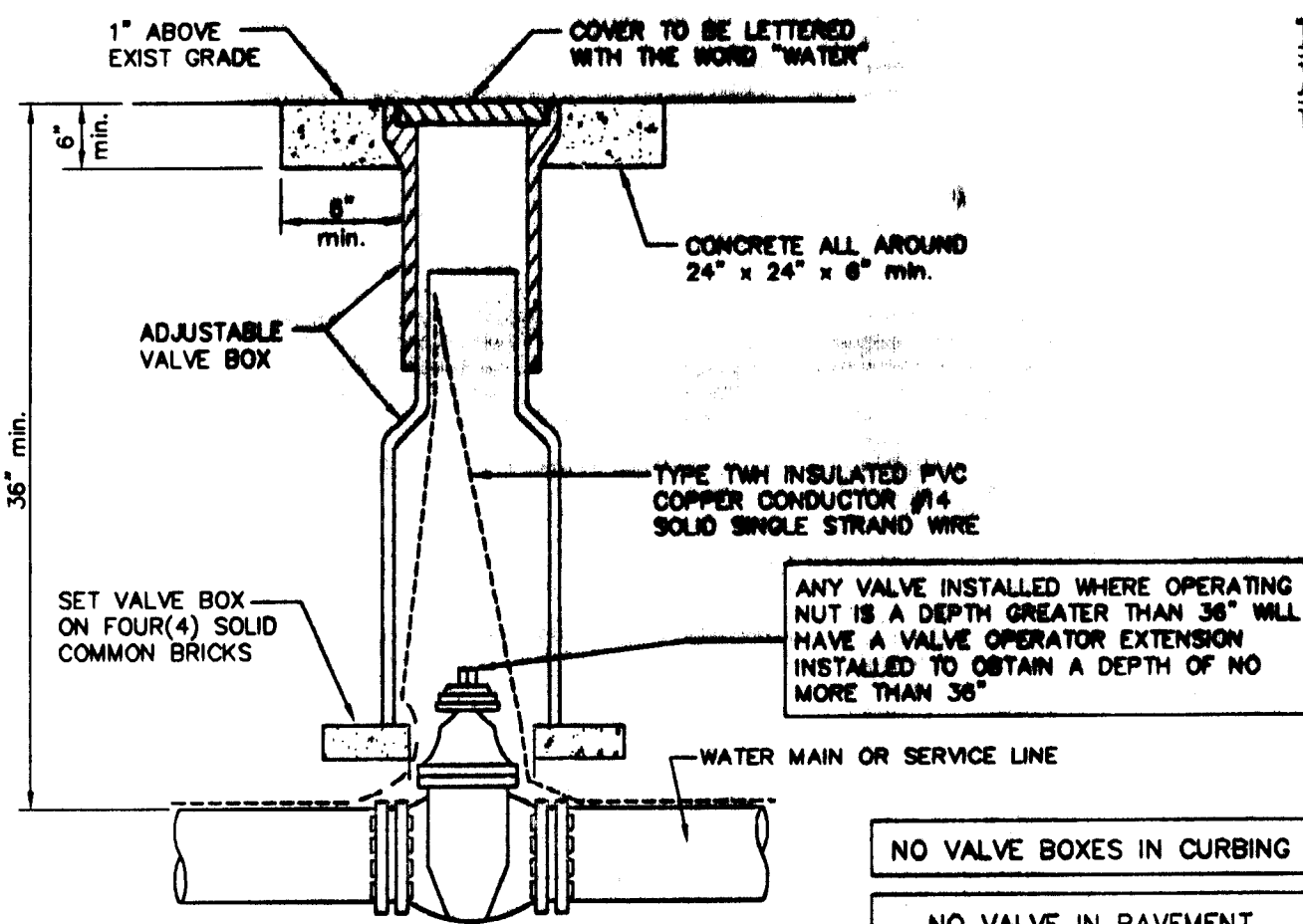
NOTE: PROVIDE RESTRAINED JOINTS AT CHANGES IN DIRECTION OF ALL WATER MAINS. RESTRAIN ALL PIPE JOINTS WITHIN THE DISTANCES SHOWN IN THE ABOVE TABLE FROM THE P.I. OF FITTING. ALL FITTING JOINTS, PIPE JOINTS, VALVE JOINTS, COUPLINGS, SLEEVES, ETC. SHALL BE RESTRAINED WITHIN THE DISTANCES SHOWN. DISTANCES APPLY TO LENGTHS OF PIPE ON EACH SIDE OF THE FITTING. TEES AND DEAD ENDS VALVED OR CAPPED ARE CONSIDERED EQUIVALENT TO 90 DEG. BENDS. (LENGTHS ARE BASED ON SOIL OF "TYPE 2 CLAY" BACKFILL AND 200 PSI TEST PRESSURE.) JOINT RESTRAINTS SHALL BE MEGA-LUG OR APPROVED EQUAL.



BLOWOFF ASSEMBLY



FIRE HYDRANT DETAIL

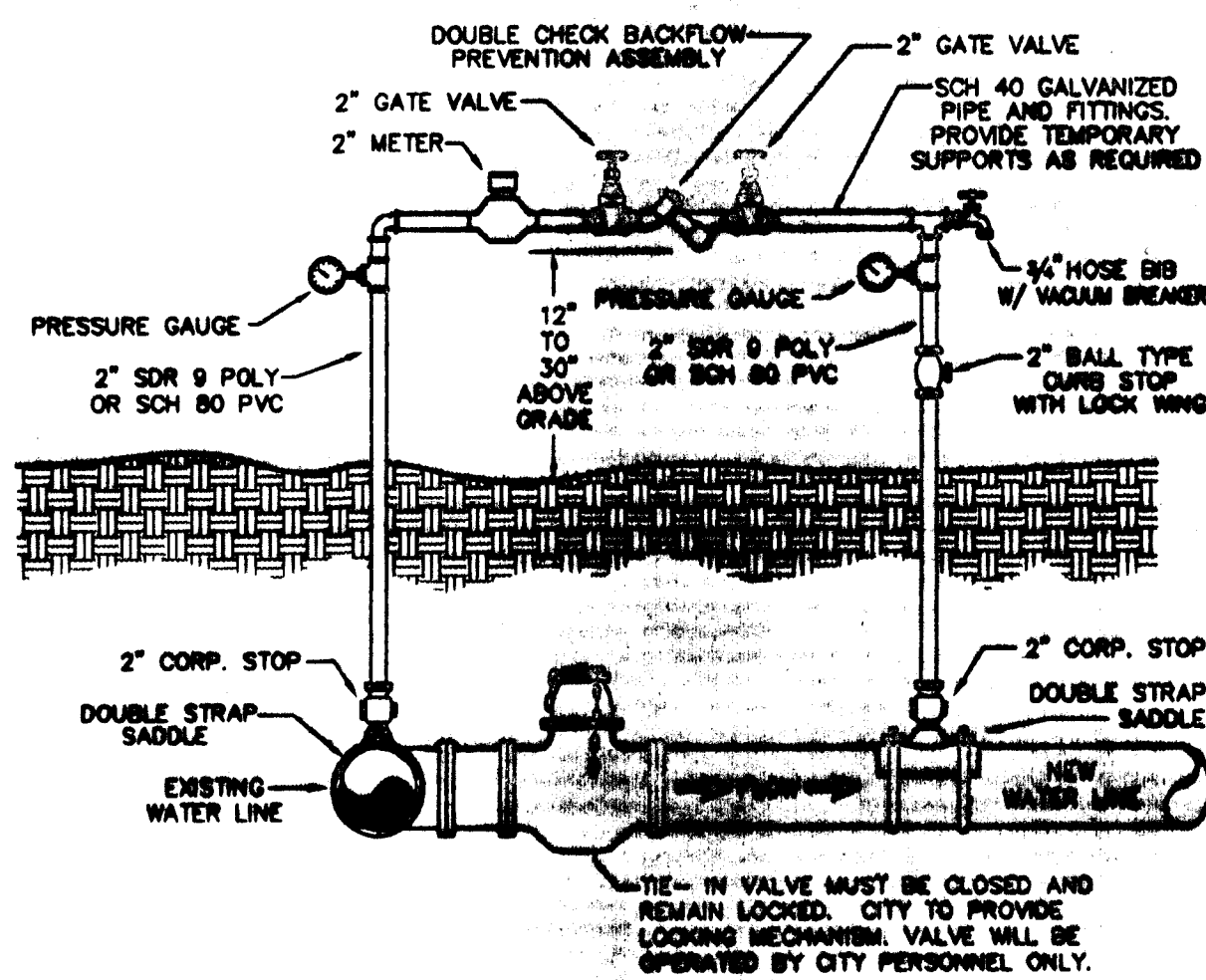


GATE VALVE & BOX

GENERAL NOTES

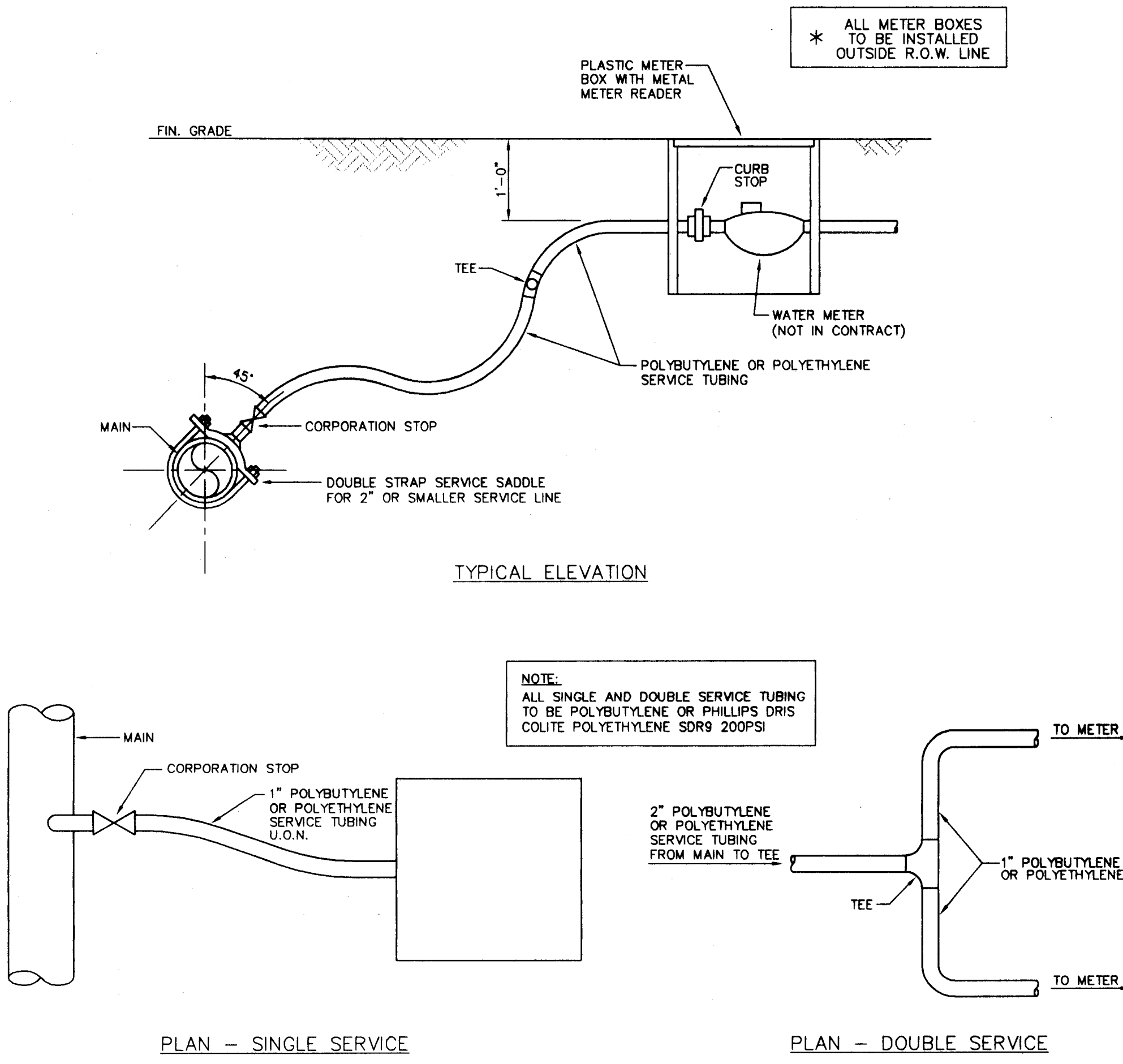
- Pressure Test - The pipes shall be completely filled with water, bleeding air as necessary, and subjected to a pressure of 150 psi which shall be maintained, by pumping, for at least two (2) hours and until all exposed joints and fittings have been inspected for leakage. After leaks, if any, have been satisfactorily repaired the lines will be retested. Prior to testing, thrust blocks shall be installed and all piping shall be adequately braced and supported so that no damage will result from the application of the test. Leakage in gallons per hour shall not exceed that as determined by the following formulas as set forth in AWWA Standard M-23:

$$L = \frac{ND(P)^{0.5}}{7400}$$
 Where L: Leakage in gallons per hour
 N: Number of joints in section tested
 D: Nominal diameter of the pipe - inches
 P: Average test pressure maintained during the leakage test in psig.
- After completion of construction and testing, the water system shall be sterilized with chlorine before acceptance for domestic operation. The amount of chlorine applied shall be sufficient to provide a dosage of 50 parts per million or more. After thoroughly flushing the system with clean water, the chlorine solution shall be introduced in a manner conforming to A.W.W.A. specification C-651. The Chlorine solution shall remain in the system for a contact period of at least 24 hours, during which every valve in the system shall be opened and closed several times to assure contact with all parts of the system. Upon completion of the sterilization operation, the system shall be flushed with chlorinated water from a domestic source. Samples shall then be taken by the contractor for testing to the satisfaction and in accordance with the Florida Department of Environmental Protection regulations.
- Gate Valves - 2 1/2" or smaller: Bronze body Federal Spec., 150 psi working pressure with threaded joints equal to American 3 FG or Red and White 280. The use of this type of valve would have to be approved by the City.
- Gate Valves - 3" and larger: Iron body, non-rising stem type with corrosion protection coating inside and out, resilient seated valve which meets all requirements of AWWA Standard C-509.
- Contractor to furnish owner with one T-handle socket valve wrench for each different size operating nut on valves installed and one spanner wrench for each four fire hydrants installed.
- Valve Boxes: All valves installed underground shall be provided with an adjustable, screw type cast iron valve box and cover marked "Water". Minimum inside diameter of 5 inches and designed so as not to bear on or transmit any surface load to the valve or pipe. Minimum 24" x 24" x 6" deep concrete cover shall be placed around the top of the box at ground level. Valve boxes shall not be installed in curb and gutter or in pavement sections.
- Minimum cover: All mains to have 3'-0" minimum cover and all service lines to have 1'-6" minimum cover.
- Utility Separation - Vertical Clearance: Where water and gravity sanitary sewer mains cross with less than 18 inches vertical clearance or the sewer main is above the water main, the sanitary sewer will be 20 feet of either:
 - ductile iron pipe, centered on the point of crossing, or
 - concrete encased vitrified clay, or
 - PVC pipe upgraded to water main standards and pressure tested.
 Where water mains and storm sewer pipes cross with less than 18 inches vertical clearance, the water main shall be 20 feet of ductile iron pipe centered on the point of crossing.
- Utility Separation - Horizontal Separation: When a water main parallels a gravity sanitary sewer main, a separation (measured edge to edge) of at least ten feet should be maintained. Where this separation is not met, one of the following must occur:
 - the water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer, or
 - if both sanitary sewer and potable water mains are proposed and the above (A) is not met, the sanitary sewer pipes shall be upgraded to the equivalent pipe material on the water main and pressure tested
 - if the sanitary is existing and the potable water main is proposed, the water main shall, at a minimum, be upgraded to ductile iron pipe, constructed in separate trenches, laid at a higher elevation than the sanitary sewer, and utilize staggered joints.
- All potable water pipes must be manufactured in accordance with the following AWWA specifications:
 - Ductile iron pipes (3 inches to 54 inches) - AWWA C160/C151;
 - PVC - All domestic drinking water pvc pipes shall bear the NSF logo "PW" for potable water use:
 - AWWA C900/ASTM 1784 (4 inches to 12 inches) shall have a dimension ratio (D.R.) of 18 or less and shall be a pressure class of 150 psi;
 - AWWA C905 (14 inches to 36 inches);
 - ASTM 1785 or AWWA C905 (less than 4 inches) schedules 40, 80 and 120 or ASTM 2241 (SDR 21 minimum);
 - Polyethylene pipe - AWWA C901 with valves and fittings (AWWA C800); and
 - Polybutylene pipe - AWWA C902.
- All pressure lines under pavement sections shall be installed with pvc casing pipe extending 5 feet beyond the edge of pavement.
- Tracking wire shall be taped to the pipe at two locations per joint. Tracking wire shall be type THW insulated P.V.C. copper conductor No.14 solid single strand. The wire shall be a continuous run from valve to valve. Should a splice be required, it shall be made good and firm and properly insulated so water and corrosion will not deteriorate the copper. Metallic locating tape shall be placed in the trench 18" above the top of pipe.
- All fittings shall be cast iron or ductile iron. Fittings shall conform to A.N.S.I. Standard A 21.10 with mechanical joints in accordance with A.N.S.I. Standard A 21.11. Where mechanical joint fittings interface with P.V.C. pipe, a transition gasket shall be used.
- City of Leesburg "Water Construction Requirements" are incorporated herein by reference. In the case of a discrepancy between the specifications above and those required by the City, the City specifications shall govern for all material and installation procedures.



TEMPORARY JUMPER DETAIL

- A temporary jumper connection is required at all connections between existing active water mains and proposed new water main improvements.
- The metal jumper is to be used for filling any new water main of any size from existing active water mains and for flushing of new mains up to 12" diameter (2.5 PSI minimum velocity) and for pulling bacteriological samples from any new water main of any size. Jumper connections shall be maintained until after flushing, testing and connection to the new main has been successfully completed and clearance for use from the Florida Department of Environmental Protection (FDEP) and other pertinent agencies has been received by the City of Leesburg. This jumper connection shall also be used to maintain a minimum pressure of 20 PSI in the new main all the time after connection for and until the stop clearance letter is obtained. Adequate thrust blocking and/or restraints shall be provided temporarily, as required. Pipe and fittings used for connecting the new pipe to the existing pipe shall be identified prior to installation in accordance with AWWA C901, 1992 Edition. This tapping sleeve and the exterior of the main to be tapped shall be identified by spraying or stamping per Section 4 of AWWA C901-92.
- Flushing of 48" diameter and larger water mains may be done through the TE-IN VALVE, UNDER VERY CONTROLLED CONDITIONS. THE FOLLOWING PROCEDURES SHALL BE FOLLOWED:
 - THE TE-IN VALVES SHALL BE OPERATED AND PRESSURE TESTED IN THE PRESENCE OF THE UTILITY COMPANY AND EXPOSED TO NEWLY INSTALLED WATER TIGHTNESS PRIOR TO TE-IN VALVES, WHICH ARE NOT WATER TIGHT, SHALL BE REPLACED OR THE VALVE IS ALWAYS GREATER THAN 10 PSI.
 - PROVIDE FOR AND MONITOR THE PRESSURE AT THE TE-IN POINT. THE PRESSURE IN THE EXISTING MAIN MUST NOT DROP BELOW 10 PSI.
 - TE-IN VALVE SHALL BE OPENED A FEW TIMES ONLY, ENSURING A PRESSURE DROP ACROSS THE VALVE IS ALWAYS GREATER THAN 10 PSI.
 - THE TE-IN VALVE SHALL BE CLOSED BY THE UTILITY COMPANY UNTIL FLUSHING BEGINS.
 - THE TE-IN VALVE SHALL BE OPENED ONLY FOR FLUSHING OF THE NEW MAIN. THE PROCEDURE SHALL BE DIRECTED BY THE UTILITY COMPANY AND OBSERVED BY THE CONTRACTOR.
 - AFTER FLUSHING, THE TE-IN VALVE SHALL BE CLOSED AND LOCKED IN THE CLOSED POSITION BY THE UTILITY COMPANY.
 - THE CONTRACTOR SHALL PROVIDE DOCUMENTATION DEMONSTRATING THAT THE DOUBLE CHECK BACKFLOW PREVENTION DEVICE HAS BEEN TESTED WITHIN ONE YEAR AT THE TIME OF INSTALLATION AND IS IN GOOD WORKING ORDER AT THE TIME OF INSTALLATION. A QUALIFIED BACKFLOW PREVENTION TECHNICIAN APPROVED BY THE CITY OF LEESBURG SHALL PROVIDE THE TEST.
 - UPON RECEIPT OF CLEARANCE FOR USE FROM FDEP AND ALL OTHER PERTINENT AGENCIES, THE CONTRACTOR SHALL REMOVE THE TEMPORARY JUMPER CONNECTION. THE CORPORATION STOPS ARE TO BE CLOSED AND PLUGGED WITH 2" BRASS PLUGS.
 - ALL INSTALLATION AND MAINTENANCE OF THE TEMPORARY JUMPER CONNECTION AND ASSOCIATED BACKFLOW PREVENTION DEVICE, FITTINGS, VALVE, ETC., SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

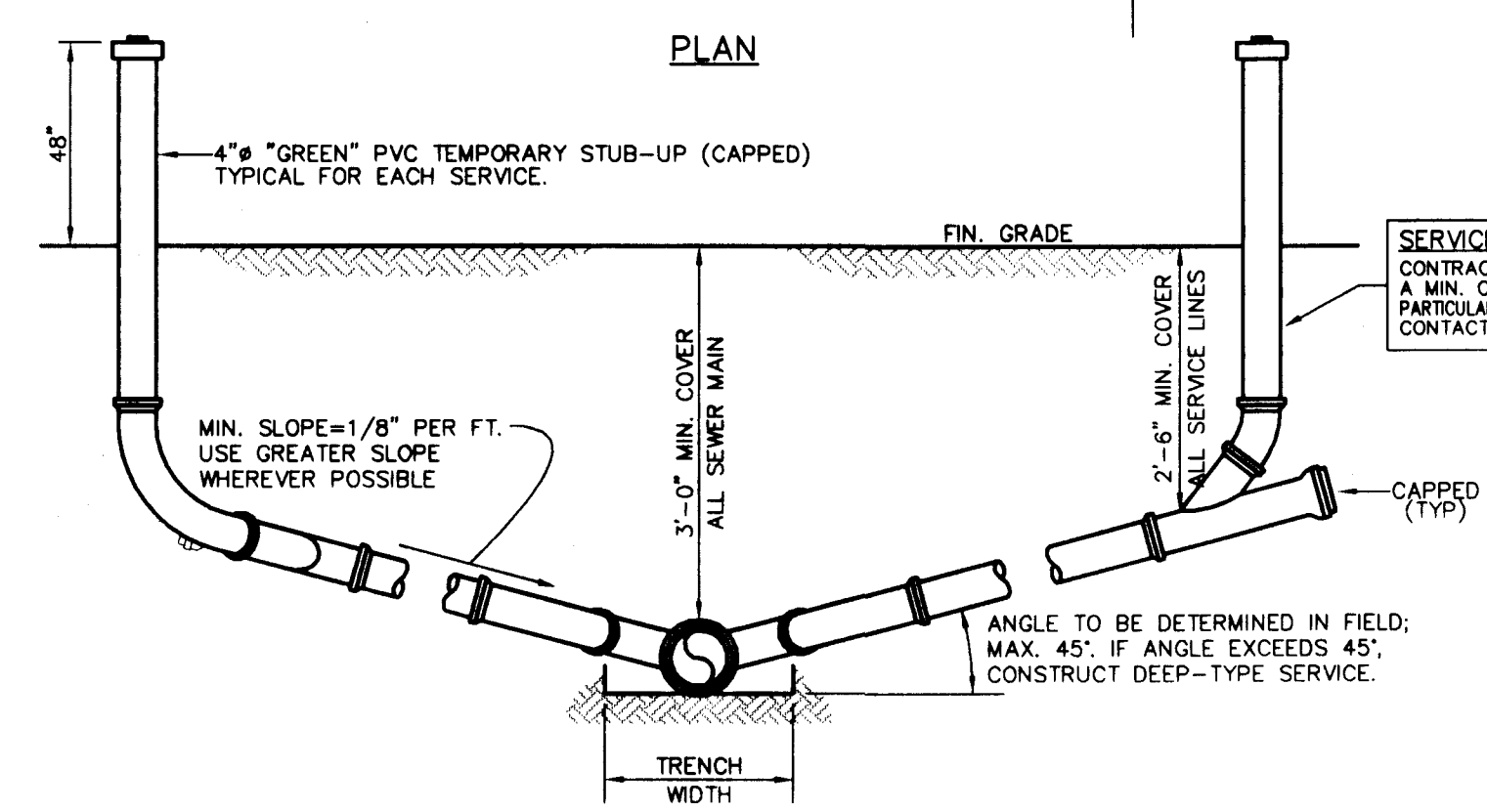
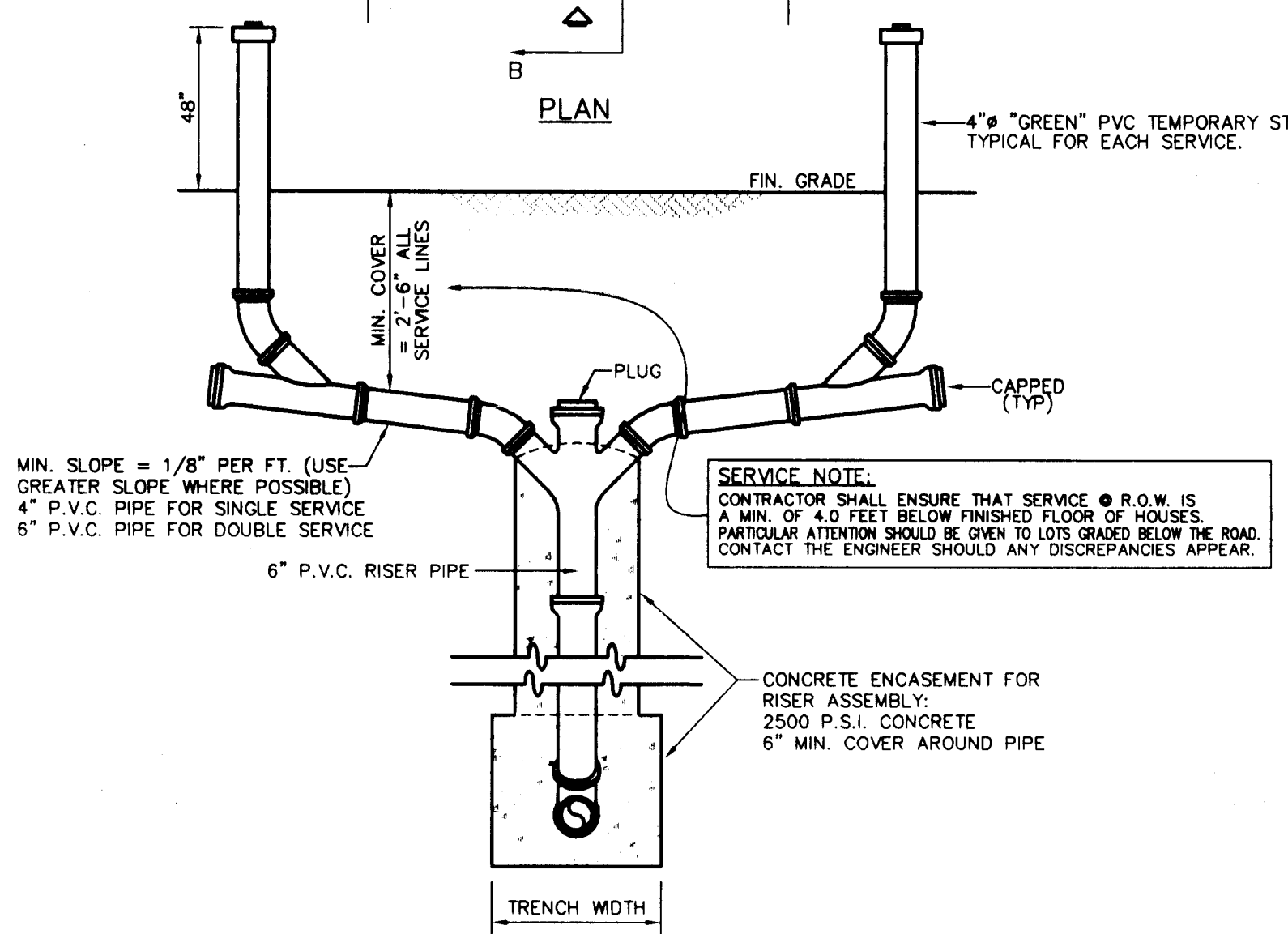
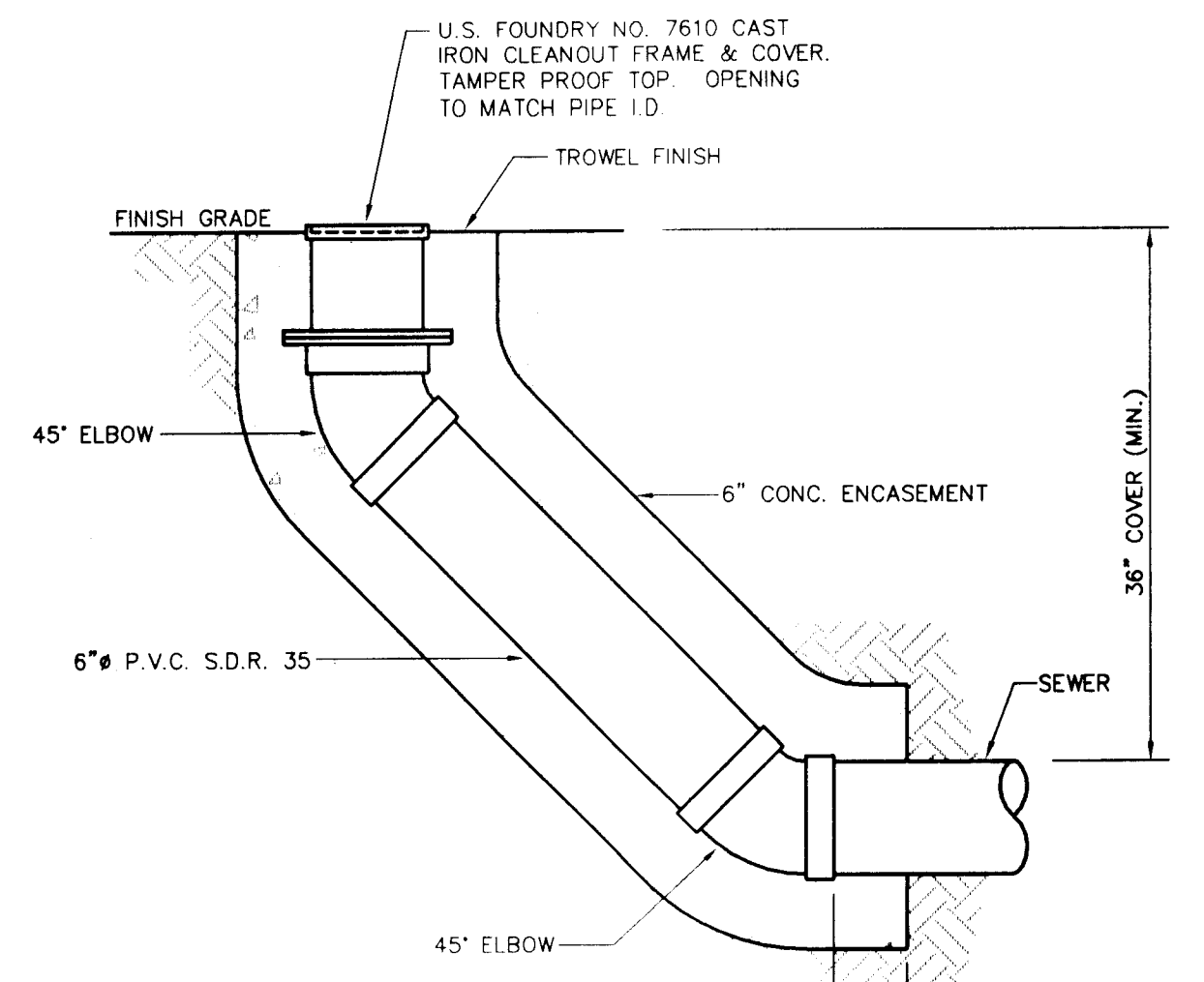
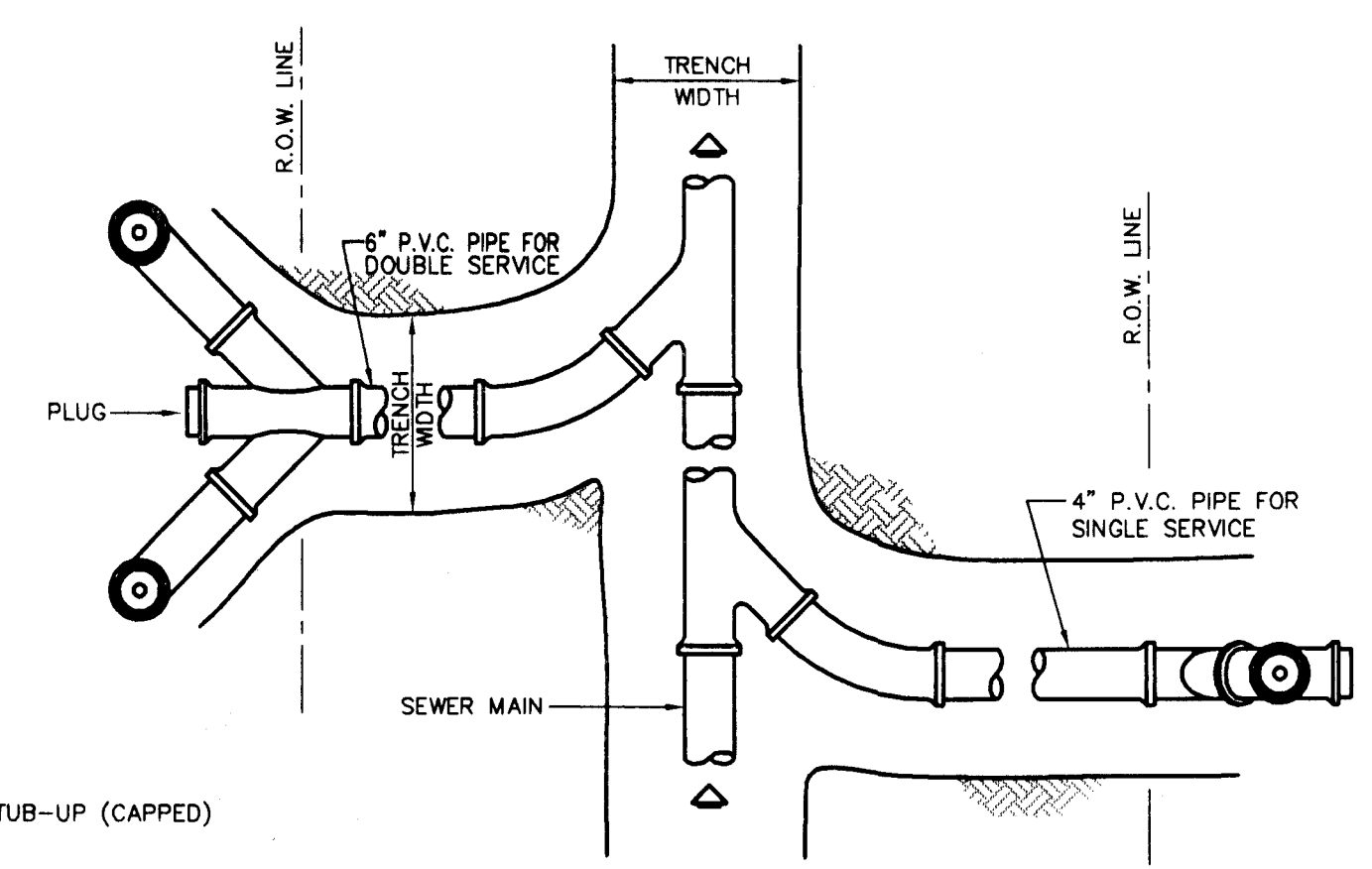
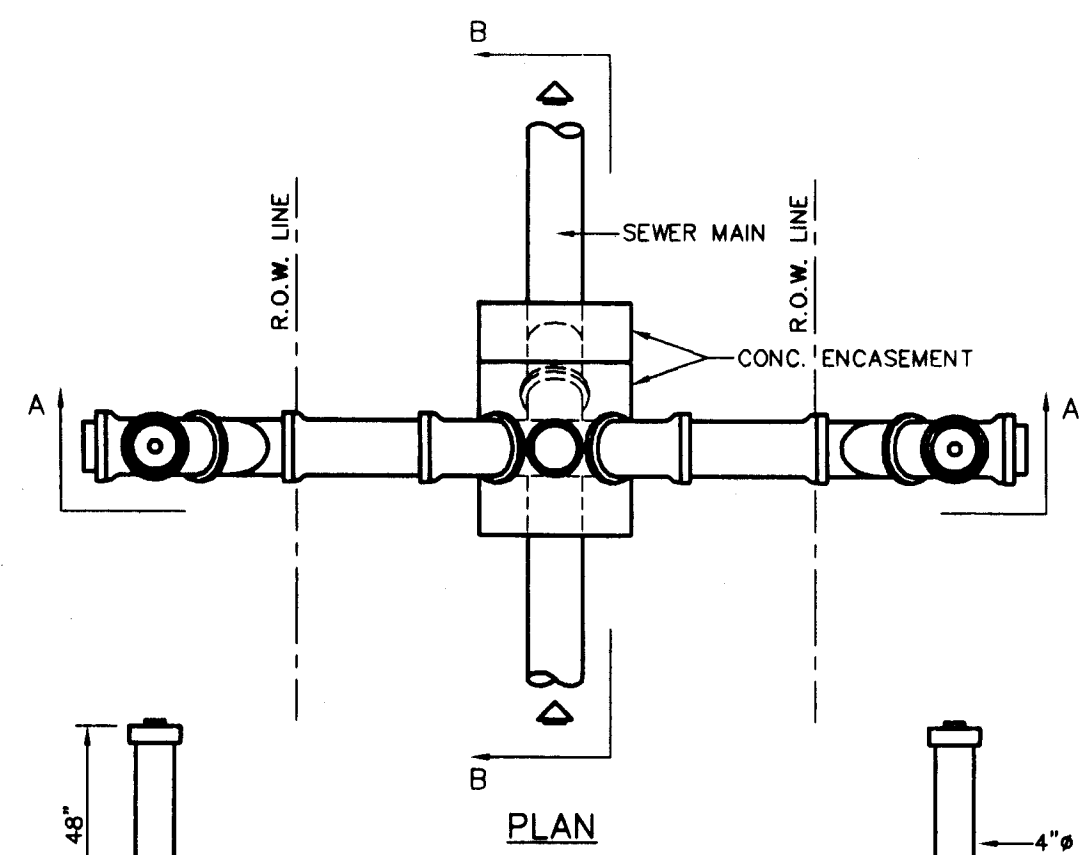


WATER SERVICE DETAILS

AS BUILT

KEITH E. RIDDLE, P.E.
FLA. REGIS. NO. 38800

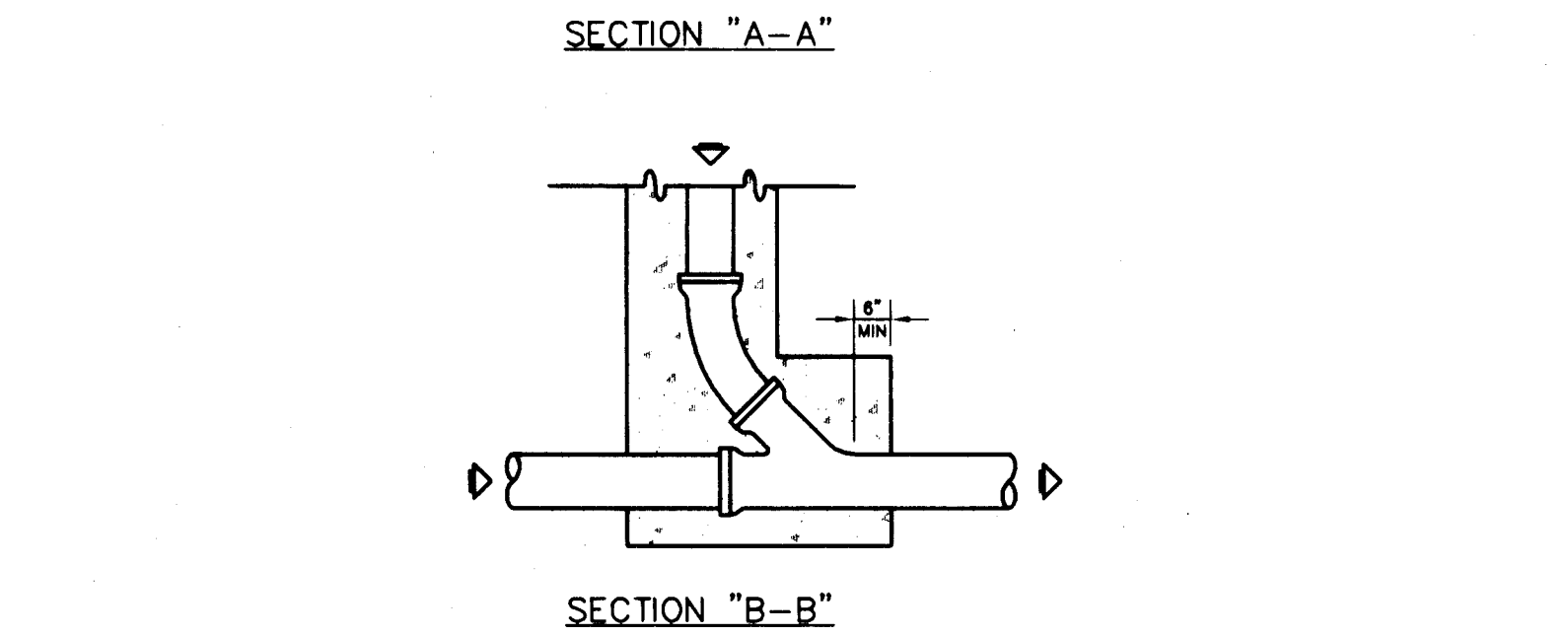
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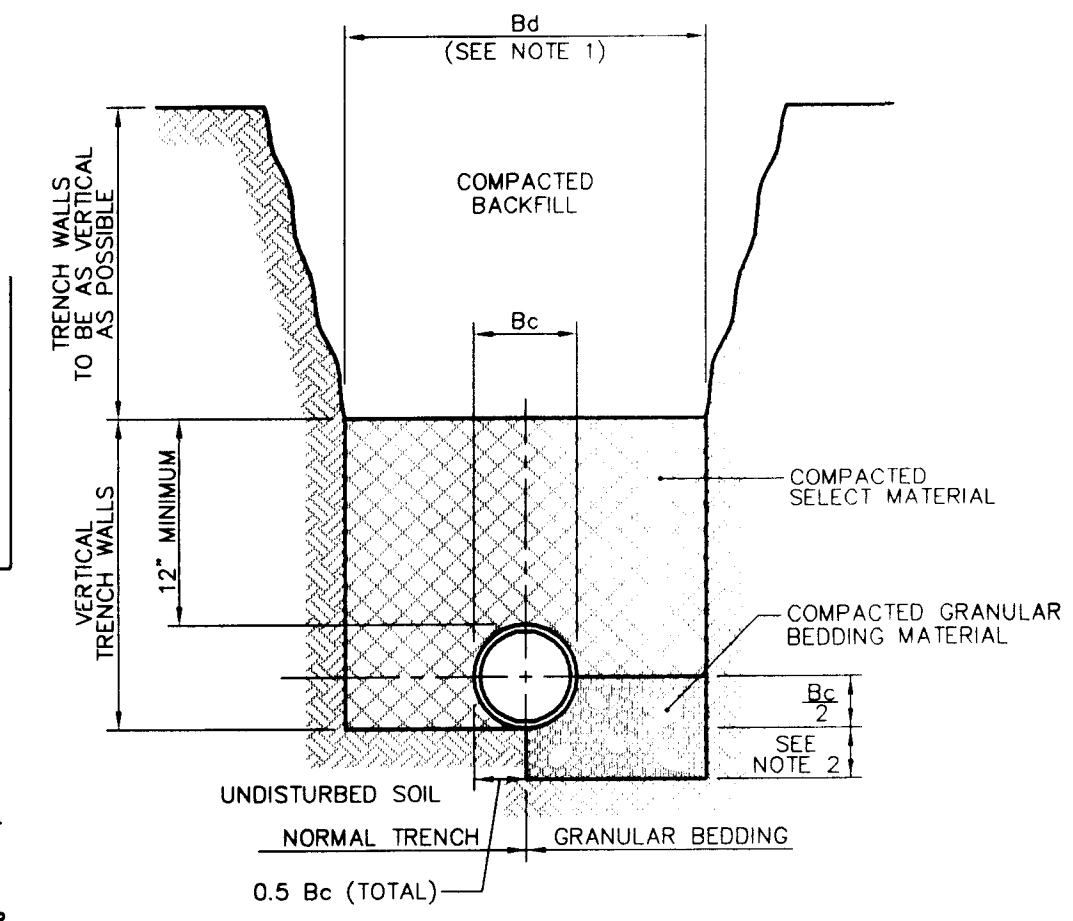
SERVICE NOTE:
CONTRACTOR SHALL ENSURE THAT SERVICE R.O.W. IS A MIN. OF 4.0 FEET BELOW FINISHED FLOOR OF HOUSES. PARTICULAR ATTENTION SHOULD BE GIVEN TO LOTS GRADED BELOW THE ROAD. CONTACT THE ENGINEER SHOULD ANY DISCREPANCIES APPEAR.

TRUNK LINE CLEAN - OUT DETAIL

- GENERAL NOTES**
- PRECAST MANHOLES:
 - SEAL ALL PIPE OPENINGS IN PRECAST MANHOLE WITH "EMBECO" NON-SHRINK GROUT OR APPROVED EQUAL.
 - DROP CONNECTIONS ARE REQUIRED WHENEVER INVERT OF INFLUENT SEWER IS 24" OR MORE ABOVE THE INVERT OF THE MANHOLE.
 - ALL P.V.C. GRAVITY SEWER PIPE TO BE S.D.R. 35 MEETING A.S.T.M. SPECIFICATION D.3034-73 (OR LATEST REVISION THEREOF) OR APPROVED ALTERNATE.
 - BACKFILL OF EARTH UNDER MANHOLES WILL NOT BE PERMITTED AND ANY EXCESS EXCAVATIONS FOR THESE STRUCTURES SHALL BE FILLED WITH 2500 PSI CONCRETE.
 - UPON COMPLETION OF EACH SECTION OR BLOCK OF SEWER, OR SUCH OTHER TIMES AS THE ENGINEER MAY DIRECT, THE BLOCK OR SECTION IS TO BE CLEANED, TESTED AND INSPECTED. EACH SECTION OF SEWER IS TO SHOW, ON EXAMINATION FROM EITHER END, A FULL CIRCLE OF LIGHT BETWEEN MANHOLES. EACH MANHOLE, OR OTHER APPURTENANCE TO THE SYSTEM SHALL BE OF THE SPECIFIED SIZE AND FORM, BE WATER TIGHT, NEATLY AND SUBSTANTIALLY CONSTRUCTED. ALL REPAIRS SHOWN NECESSARY BY INSPECTION ARE TO BE MADE, BROKEN OR CRACKED PIPE REPLACED, ALL DEPOSITS REMOVED, AND THE SEWERS LEFT TRUE TO LINE AND GRADE, ENTIRELY CLEAN AND READY FOR USE.
 - THE ALLOWABLE LIMITS OF INFILTRATION, OR EXFILTRATION, OR LEAKAGE FOR THE ENTIRE SYSTEM, OR ANY PORTION THEREOF, SHALL NOT EXCEED A RATE OF 200 GALLONS PER INCH OF DIA. PER MILE OF PIPE PER 24 HRS. THE ALLOWABLE LIMITS OF INFILTRATION OR EXFILTRATION OF MANHOLES SHALL NOT EXCEED A RATE OF 4 GALLONS PER MANHOLE PER 24 HRS.
 - ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF LEESBURG WASTEWATER DEPARTMENT.



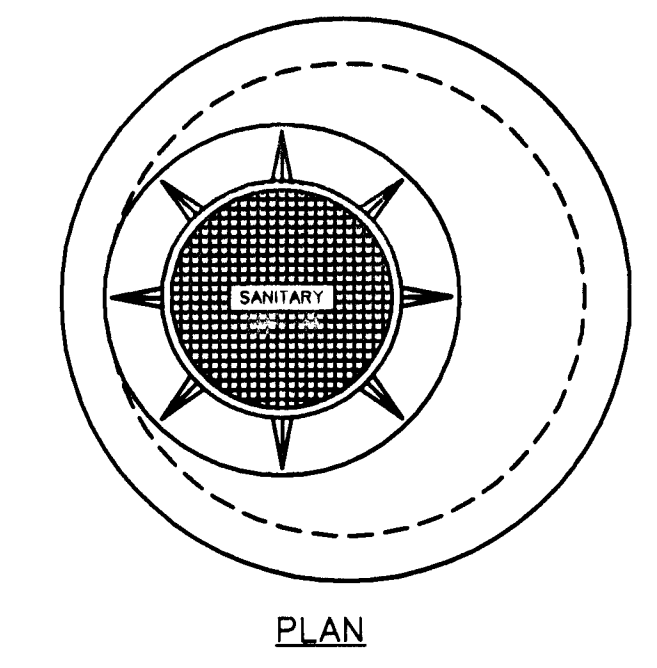
DETAIL - SERVICE LATERAL



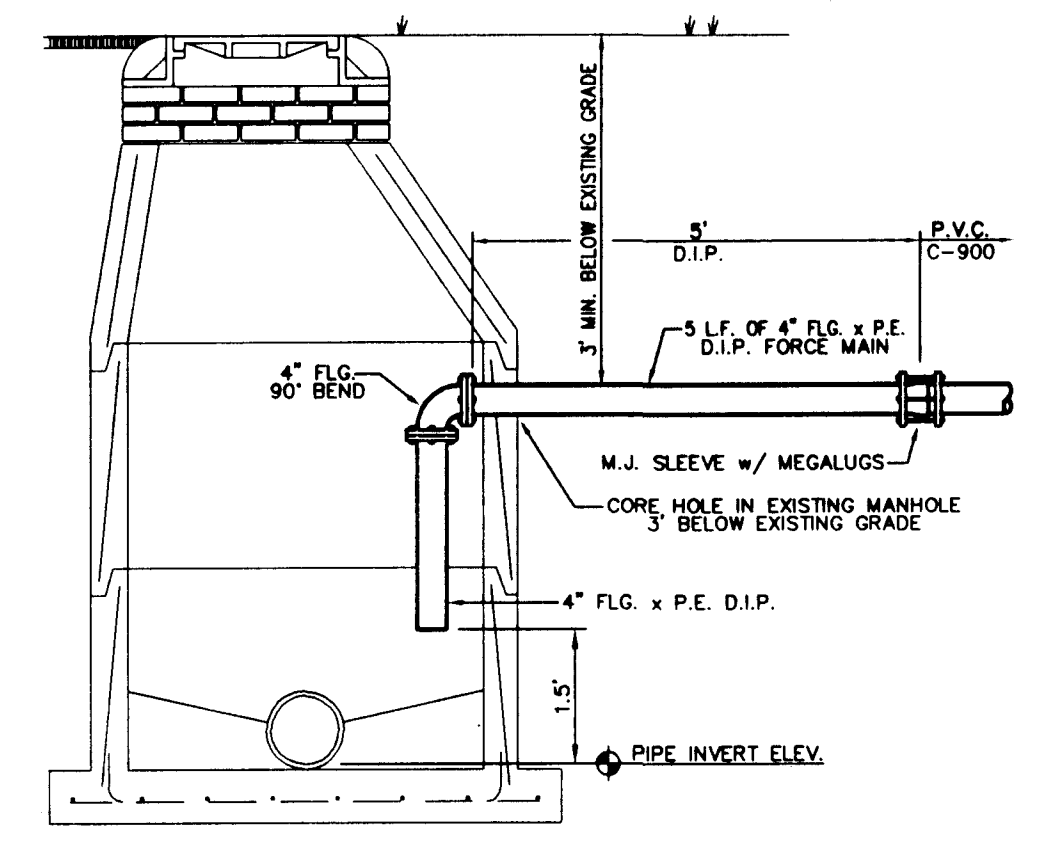
NOTES FOR BEDDING AND TRENCHING

- DIMENSION Bc = PIPE O.D.
DIMENSION Bd = TRENCH WIDTH AT TOP OF PIPE
MAXIMUM Bd = Bc + 30"
MINIMUM Bd = MAXIMUM DIMENSION OF BELL + 8" (UNHEATED TRENCH)
- DEPTH FOR REMOVAL FOR UNSUITABLE MATERIAL SHALL BE AS REQUIRED TO REACH SUITABLE FOUNDATION. FOR ROCK OR OTHER NON-CUSHIONING MATERIAL, DEPTH SHALL BE 6" BELOW BOTTOM OF UTILITY.
- ALL BACKFILL AND SELECT MATERIAL UNDER ALL ROADWAYS, DRIVES (INCLUDING DIRT DRIVES), AND PARKING AREAS SHALL BE COMPACTED TO 98% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T-180). BACKFILL AND SELECT MATERIAL UNDER ALL OTHER AREAS SHALL BE COMPACTED AS FOLLOWS: FROM BOTTOM OF TRENCH TO 12" ABOVE TOP OF PIPE - 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T-180); FROM 12" ABOVE TOP OF PIPE TO TOP OF BACKFILL - 90% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T-180).

CLASS "B" BEDDING NORMAL CONDITIONS



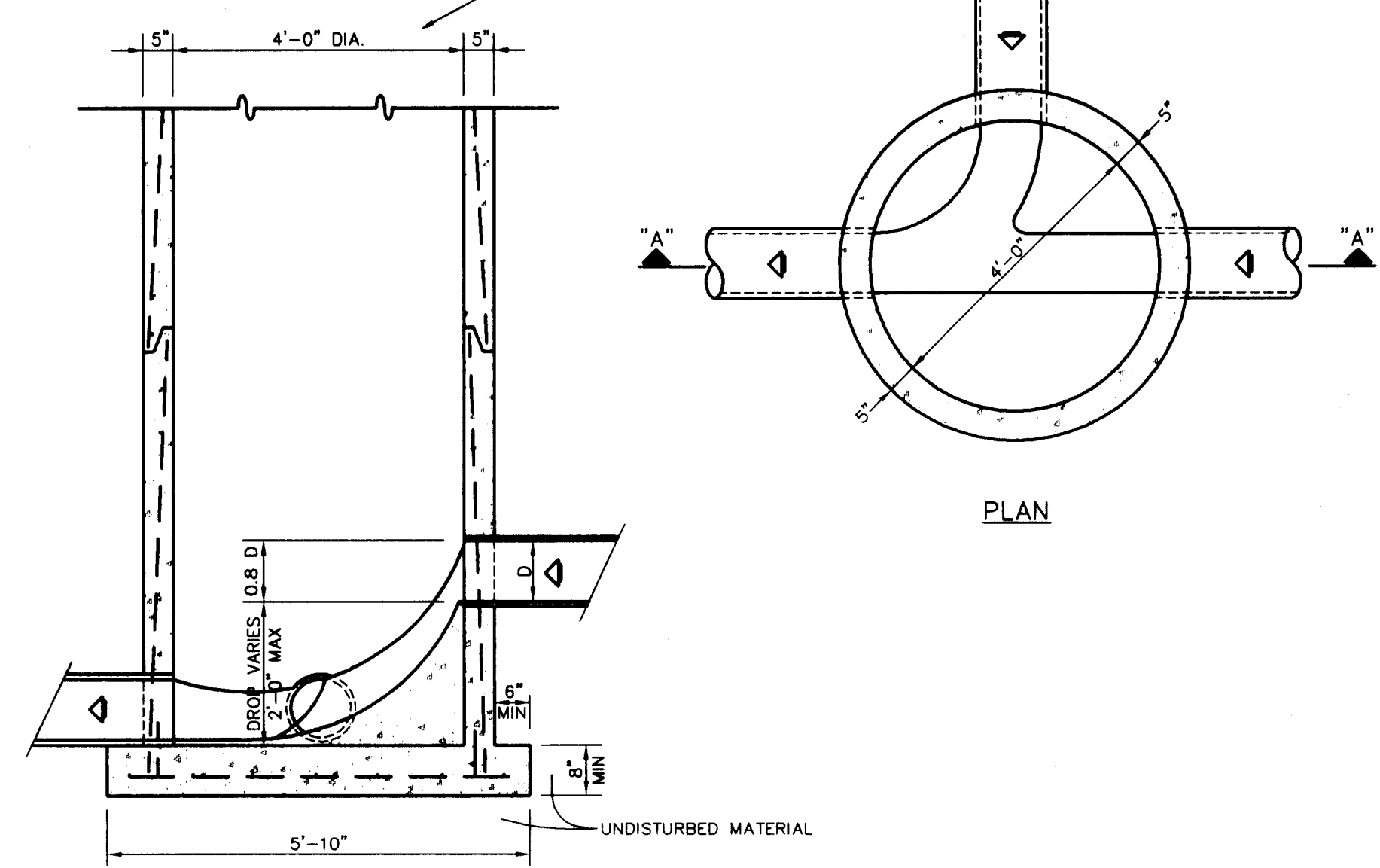
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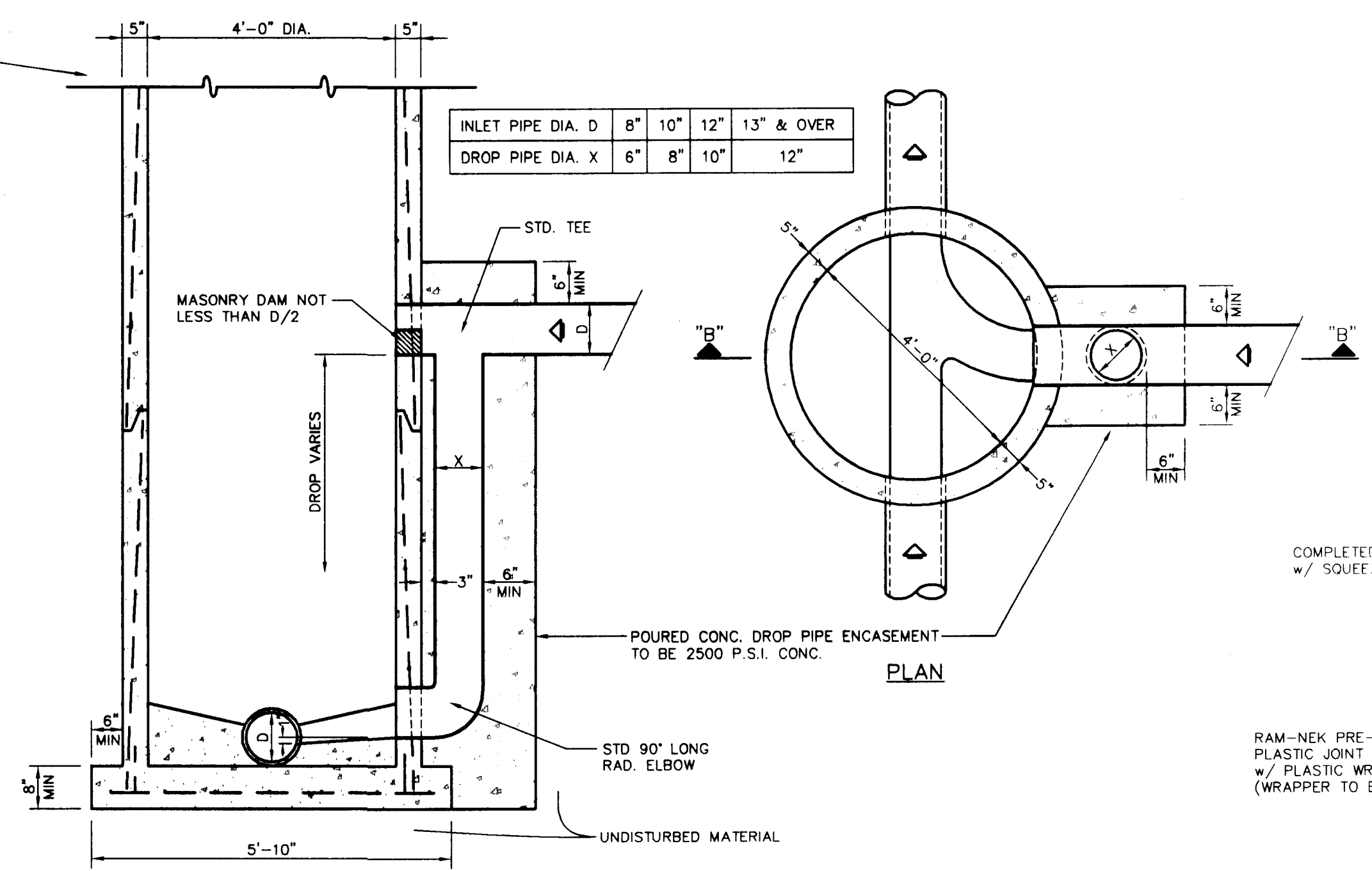
INFLUENT MANHOLE PIPING DETAIL

DETAIL - DEEP-TYPE SERVICE LATERAL

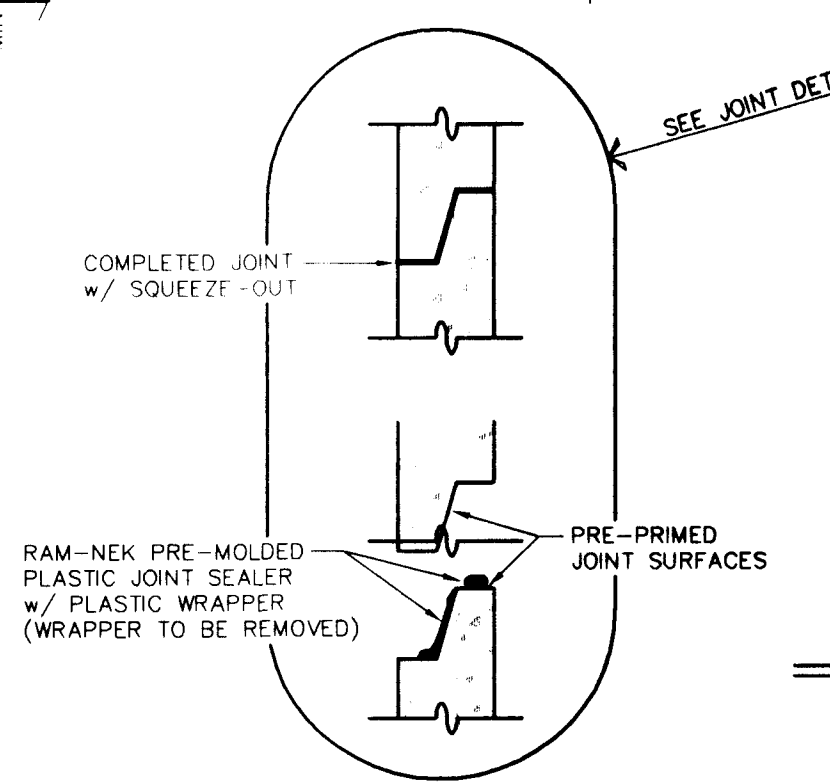
NOTE: SEE STANDARD PRECAST SANITARY MANHOLE DETAIL FOR TYPICAL TOP SECTION & CONSTRUCTION NOTES



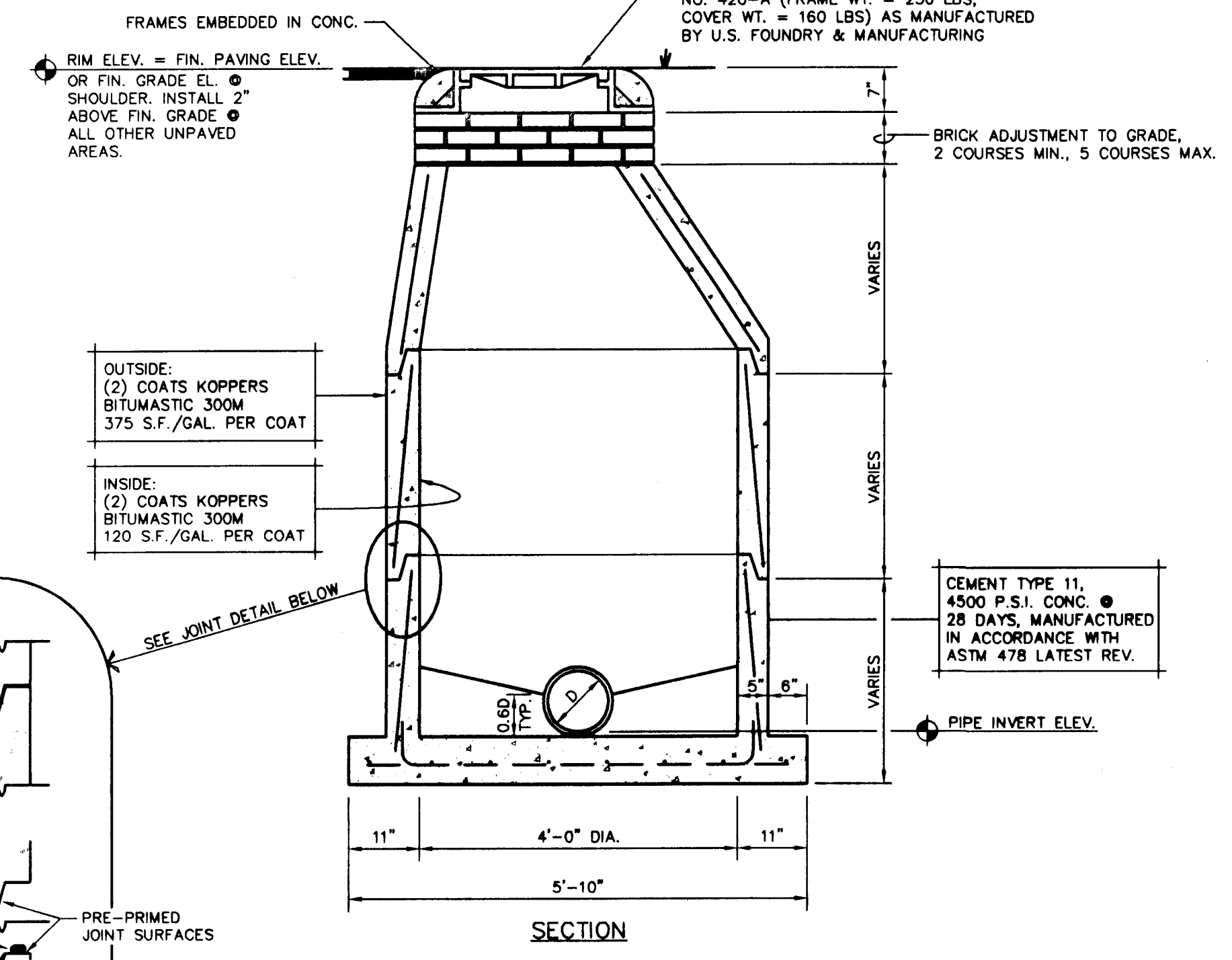
SECTION "A-A"
DROP MANHOLE (DROP 2' OR LESS)



SECTION "B-B"
DROP MANHOLE (DROP GREATER THAN 2')



TYPICAL TONGUE & GROOVE JOINT DETAIL



PRECAST SANITARY MANHOLE DETAILS

AS BUILT

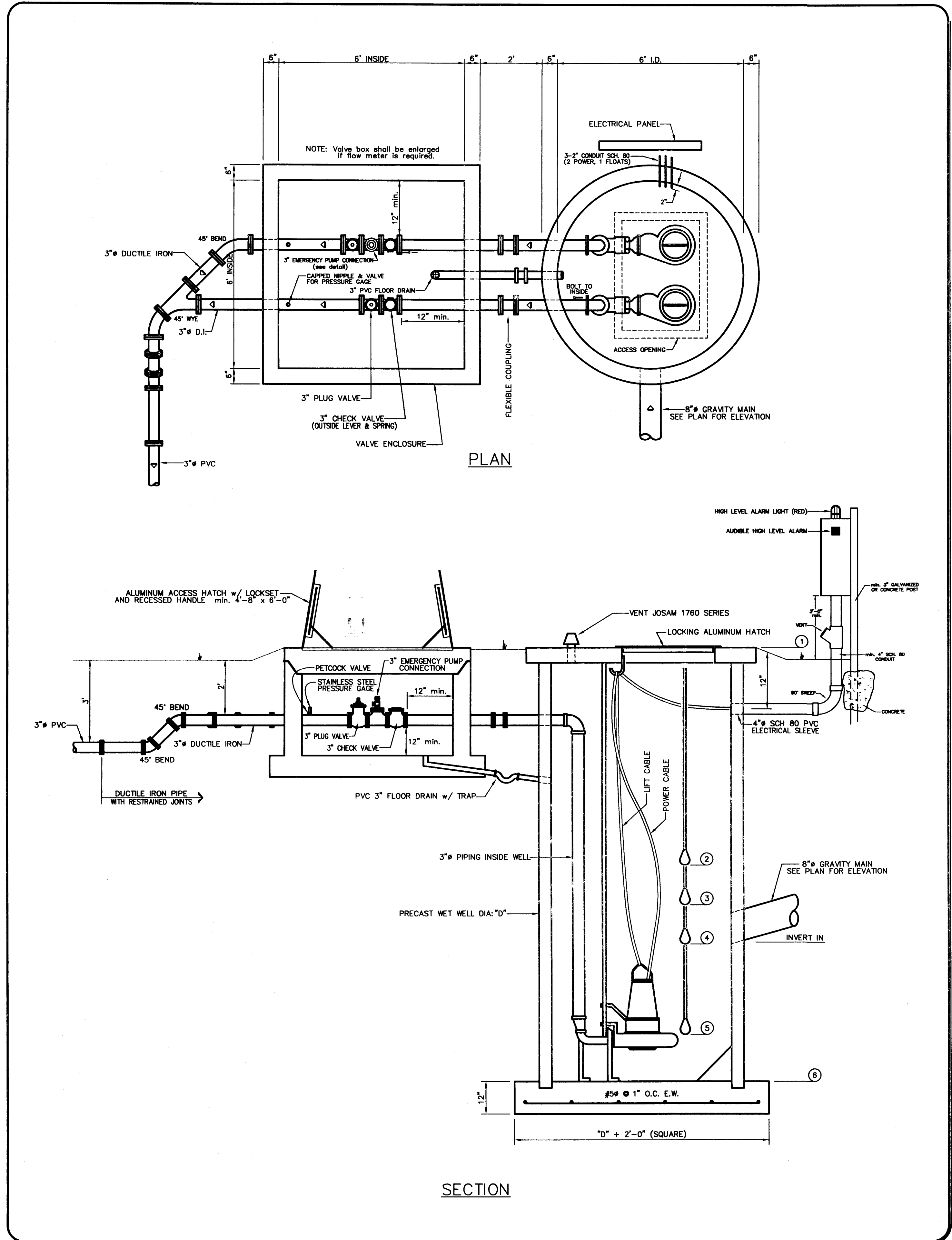
Keith E. Riddle, P.E.
FLA. REGIS. NO. 38800
DATE

RIDDLE - NEWMAN ENGINEERING, INC.
115 NORTH CANAL STREET
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keith@riddlenewman.com
CA# 00002883

RIDDLE NEWMAN ENGINEERING INC.

REV #3	R.S.H.
REV #4	K.E.R.
REV #3	N.T.S.
REV #1	5/3/02
REV #1	93092

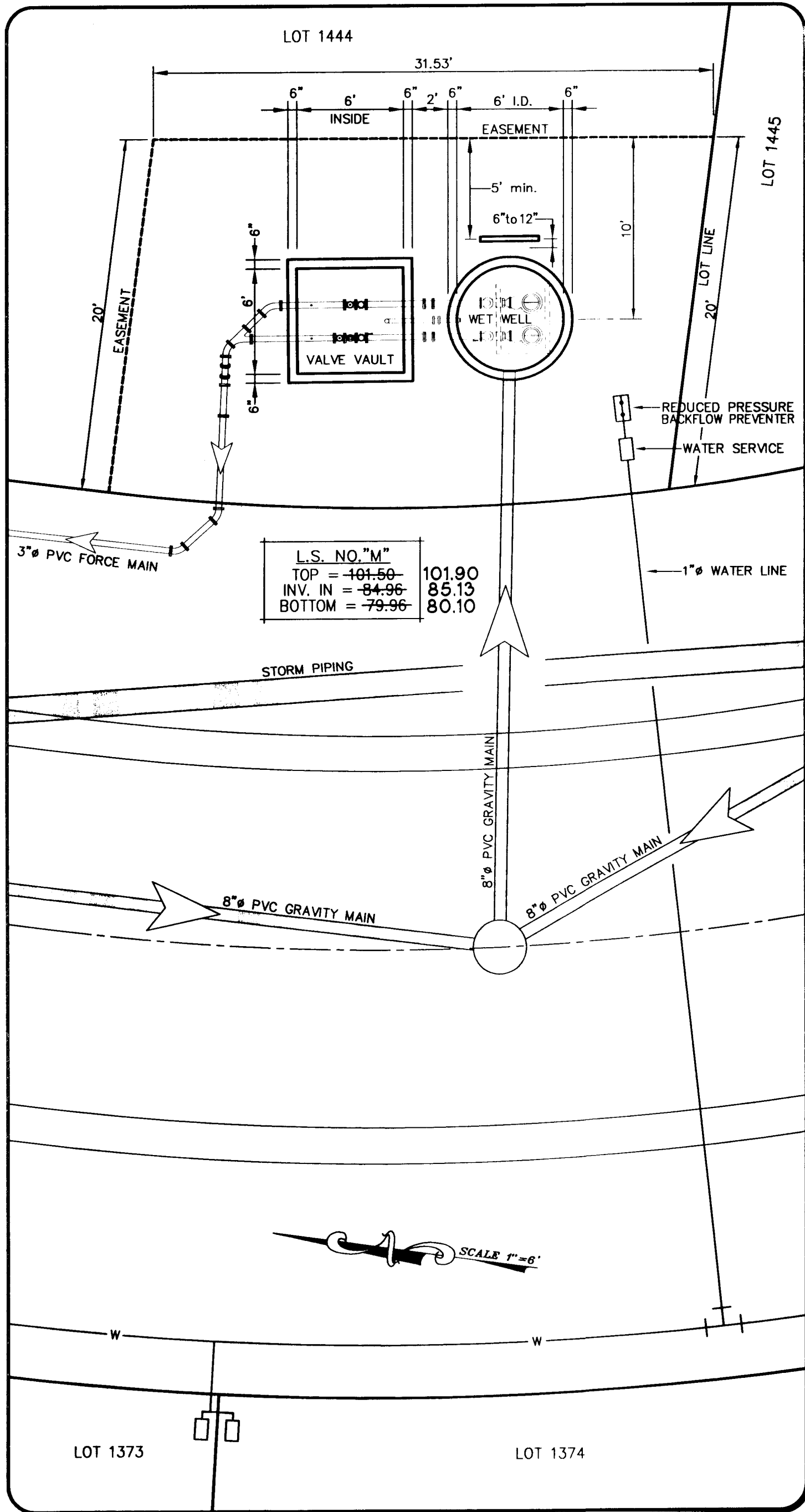
TYPICAL SEWER DETAILS
ROYAL HIGHLANDS - PHASE 2B
FLORIDA
LAKE COUNTY



LIFT STATION DETAIL

LIFT STATION DATA		
LIFT STATION		L.S. "M"
TOP OF LIFT STATION	1	-101.90
HIGH LEVEL ALARM & INVERT	2	-84.96 - 85.13
LAG PUMP ON	3	84.46
LEAD PUMP ON	4	83.96
PUMP OFF	5	81.96
BOTTOM OF LIFT STATION	6	-79.96 - 80.10
WET WELL DIAMETER	"D"	6'6"
H.P. OF PUMPS	-	3 HP

TYPICAL DUAL PUMP INSTALLATION
 PUMP: L.S."M" - (2) HYDRAMATIC S3HRC300, 3 HP, 4.25" IMPELLER, 3450 RPM (45 GPM @ 47' TDH)
 PIPING: L.S."M" - FORCE MAIN PIPING SHALL BE 3" PVC, SDR 26 (CLASS 160)
 ELECTRICAL REQUIREMENTS: 460/3/60
 PUMP SUPPLIER SHALL FURNISH SHOP DRAWINGS AND OPERATION MANUALS.



LIFT STATION SITE PLAN
SCALE: 1"=6'

- EQUIPMENT AND CONSTRUCTION NOTES
- WET WELL: SHALL BE 72"Ø INSIDE DIAMETER PRECAST CONCRETE, MEETING "STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE" A.S.T.M. C-478-68, LATEST REVISION. CONCRETE SHALL BE MADE WITH TYPE II ACID RESISTANT CEMENT AND SHALL ATTAIN COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. JOINT SHALL BE SEALED WITH RAM-NEK, OR EQUAL, FLEXIBLE SEALER CONFORMING TO FEDERAL SPECIFICATION SS-00210.
 - PUMPS: SEE INDIVIDUAL LIFT STATION DATA.
 - THREE (3) CHECK VALVES, APCO OR EQUAL. (OUTSIDE LEVER AND SPRING).
 - 3" ECCENTRIC PLUG VALVE, HAND OPERATED, BY DE ZURICK, OR EQUAL.
 - LEVEL CONTROLS: SHALL BE MODEL 3900 LIQUID LEVEL REGULATORS, EACH PROVIDED WITH 30' ELECTRIC CABLE AND WEIGHTS AS MANUFACTURED BY HYDR-O-MATIC.
 - WET WELL ACCESS COVER: SHALL HAVE CLEAR OPENING OF 30" X 36" AND DOUBLE DOOR ACCESS, AS MANUFACTURED BY HALLIDAY PRODUCTS, OR EQUAL. ACCESS FRAME AND COVERS SHALL BE FABRICATED OF ALUMINUM. FRAME SHALL SUPPORT GUIDE RAILS AND ELECTRICAL WIRING CHANNEL AS PER HYDR-O-MATIC SPECIFICATIONS. WIRING CHANNEL AND MOUNTING BRACKET FOR CHANNEL SHALL BE CONSTRUCTED OF STAINLESS STEEL. COVERS SHALL BE PROVIDED WITH LIFTING HANDLE AND SAFETY LATCH TO HOLD COVER IN OPEN POSITION. LOCKING HASPS SHALL BE FURNISHED FOR EACH COVER. STAINLESS STEEL HARDWARE SHALL BE USED THROUGHOUT. ALL SURFACES IN CONTACT WITH CONCRETE SHALL HAVE A SHOP COAT OF ZINC CHROMATIC PRIMER, APPROVED ALKALI RESISTANT PAINT, OR OTHER APPROVED PROTECTIVE COATING. COVER MUST BE COMPATIBLE WITH PUMPS.
 - VALVE VAULT ACCESS COVER: SHALL HAVE CLEAR OPENING OF 48" X 60" AS MANUFACTURED BY HALLIDAY PRODUCTS, OR EQUAL. DOOR LEAF SHALL BE 1/4" ALUMINUM DIAMOND PATTERN PLATE, TO WITHSTAND A LIVE LOAD OF 150 LBS. CHANNEL FRAME SHALL BE 1/4" ALUMINUM WITH ANCHOR FLANGE AROUND THE PERIMETER. COVER SHALL BE PROVIDED WITH LIFTING HANDLE AND SAFETY LATCH TO HOLD COVER IN OPEN POSITION. A LOCKING HASP SHALL BE FURNISHED FOR EACH COVER. STAINLESS STEEL HARDWARE SHALL BE USED THROUGHOUT. ALL SURFACES IN CONTACT WITH CONCRETE SHALL HAVE A SHOT COAT OF ZINC CHROMATIC PRIMER, APPROVED ALKALI RESISTANT PAINT, OR OTHER APPROVED PROTECTIVE COATING.
 - PADLOCK FOR ACCESS COVERS AND CONTROL PANEL DOOR: SHALL BE 3626 MASTER #4 BRASS PADLOCK, KEYS ALIKE. FURNISH TWO (2) KEYS PER LOCK. BOLTS IN LOCKING DEVICE SHALL BE STAINLESS STEEL.
 - ELECTRICAL SERVICE ENTRANCE: PROVIDE METER SOCKET AND DISCONNECT, MEETING APPLICABLE ELECTRIC CODES AND REQUIREMENTS OF POWER COMPANY. LIGHTNING & VOLTAGE PROTECTION TO BE PROVIDED.
 - CONTROL PANEL: SHALL BE EQUIPPED WITH INDIVIDUAL DISCONNECTS, ACROSS THE LINE MAGNETIC STARTERS, THREE POLE OVERHEAD PROTECTION, ELECTRICAL ALTERNATOR, AUTOMATIC TRANSFER TO NON-OPERATING PUMP, OVERLOAD RESETS, H.O.A. PUMP OPERATING SELECTOR SWITCH, ELAPSED TIME METERS FOR EACH PUMP, AND TERMINAL BOARD WITH CONNECTIONS FOR HIGH LEVEL ALARMS. ALL COMPONENTS SHALL BE HOUSED IN NEW 36" X 30" STAINLESS STEEL ENCLOSURE WITH ALUMINUM DEAD FRONT INNER DOOR DESIGN. PROVISIONS FOR PADLOCKING PANEL SHALL BE PROVIDED.
- OTHER REQUIRED EQUIPMENT:
- MAIN BREAKER.
 - HIGH LEVEL ALARM LIGHT, FLASHER, PILOT LIGHT, HORN, PUSH TO TEST SWITCH AND SILENCING SWITCH.
 - CONVENIENCE RECEPTACLE GROUND-FAULT INTERRUPTER TYPE.
 - LIGHTNING ARRESTORS.
 - 24 VOLT CONTROL CIRCUITRY.
 - VOLTAGE MONITOR RELAY.
 - SEAL FAILURE MODULE.
 - LIQUID LEVEL LIGHTS.
 - EMERGENCY GENERATOR RECEPTACLE - J.R.S.B. 1044FR.
- PAINT: INSIDE OF WET WELL & VALVE VAULT SHALL BE PAINTED WITH TWO (2) COATS OF "POXITAR" OR EQUAL, APPLIED AS PER MANUFACTURER'S RECOMMENDATIONS.
 - VALVE VAULT: PRECAST CONCRETE, 5' X 4' INSIDE DIMENSIONS.
 - CONTRACTOR TO CONFIRM SERVICE ARRANGEMENTS WITH POWER COMPANY BEFORE COMMENCING WORK. CONTRACTOR TO RUN UNDERGROUND WIRING TO NEAREST TRANSFORMER OR HAND HOLE.
 - ALL FASTENERS ON FLANGES AND ETC. INSIDE WET WELL SHALL BE STAINLESS STEEL.
 - SHOP DRAWINGS OF ENTIRE INSTALLATION MUST BE APPROVED BY THE ENGINEER PRIOR TO ORDERING MATERIALS.
 - PIPING FROM THE LIFT STATION ON, SHALL BE AS SHOWN ON PLANS. THRUST RESTRAINT BLOCKING TO BE CONSTRUCTED AS REQUIRED ALONG THE FORCE MAIN IN ACCORDANCE WITH THE DETAILS SHOWN ON "WATER DETAIL SHEET".
 - FORCE MAIN TO BE LAID LEVEL WHERE POSSIBLE. WHERE FORCE MAINS RISES TO FOLLOW PROPOSED FINISHED GRADE PROVIDING INTERMEDIATE "HIGH POINTS", INSTALL APPROPRIATE AIR RELEASE VALVE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - ALL LIFT STATION MATERIAL AND CONSTRUCTION TECHNIQUES SHALL BE IN ACCORDANCE WITH CITY OF LEESBURG REQUIREMENTS.
 - POTABLE WATER SERVICE LOCATED AT LIFT STATION SHALL BE CONSTRUCTED WITH A REDUCED PRESSURE BACKFLOW PREVENTOR.
 - ALL EXPOSED AND EMBEDDED CONDUITS TO BE SCHEDULE 80 PVC.
 - PRESSURE GAUGES SHALL BE STAINLESS STEEL WITH STAINLESS STEEL DIAPHRAGMS, LIQUID FILLED, 1/2" DIAMETER DIAL WITH 0-1000 PSI RANGE. GAUGES SHALL BE AS MANUFACTURED BY WKA, LOWER MOUNT, TYPE 233.30 AND DIAPHRAGMS SHALL BE AS MANUFACTURED BY HYETT, MODEL 43MCR-01 OR APPROVED EQUALS.

AS BUILT
 Keith E. Riddle, P.E.
 FLA. REGS. NO. 38800
 DATE: 3/21/04

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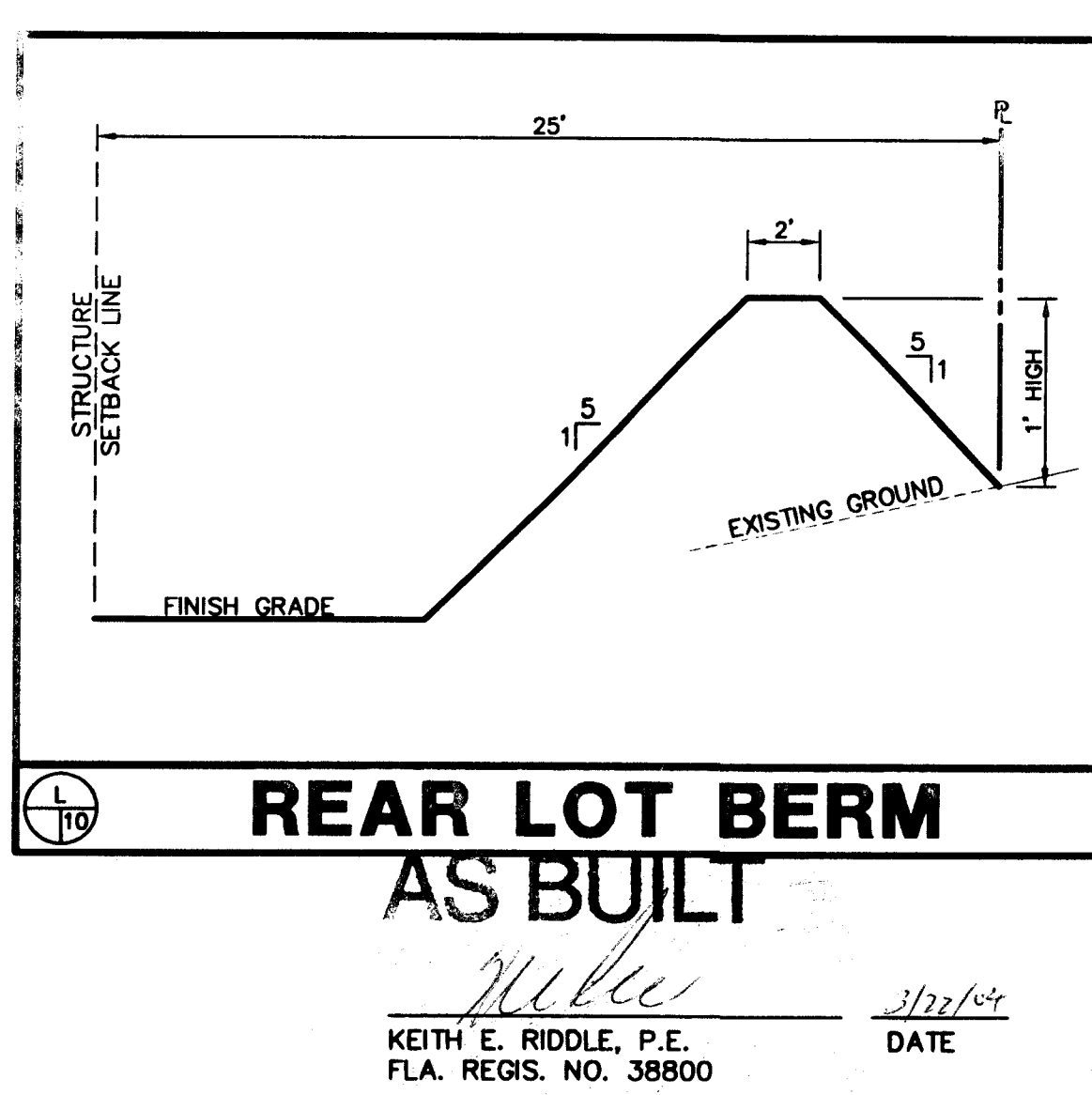
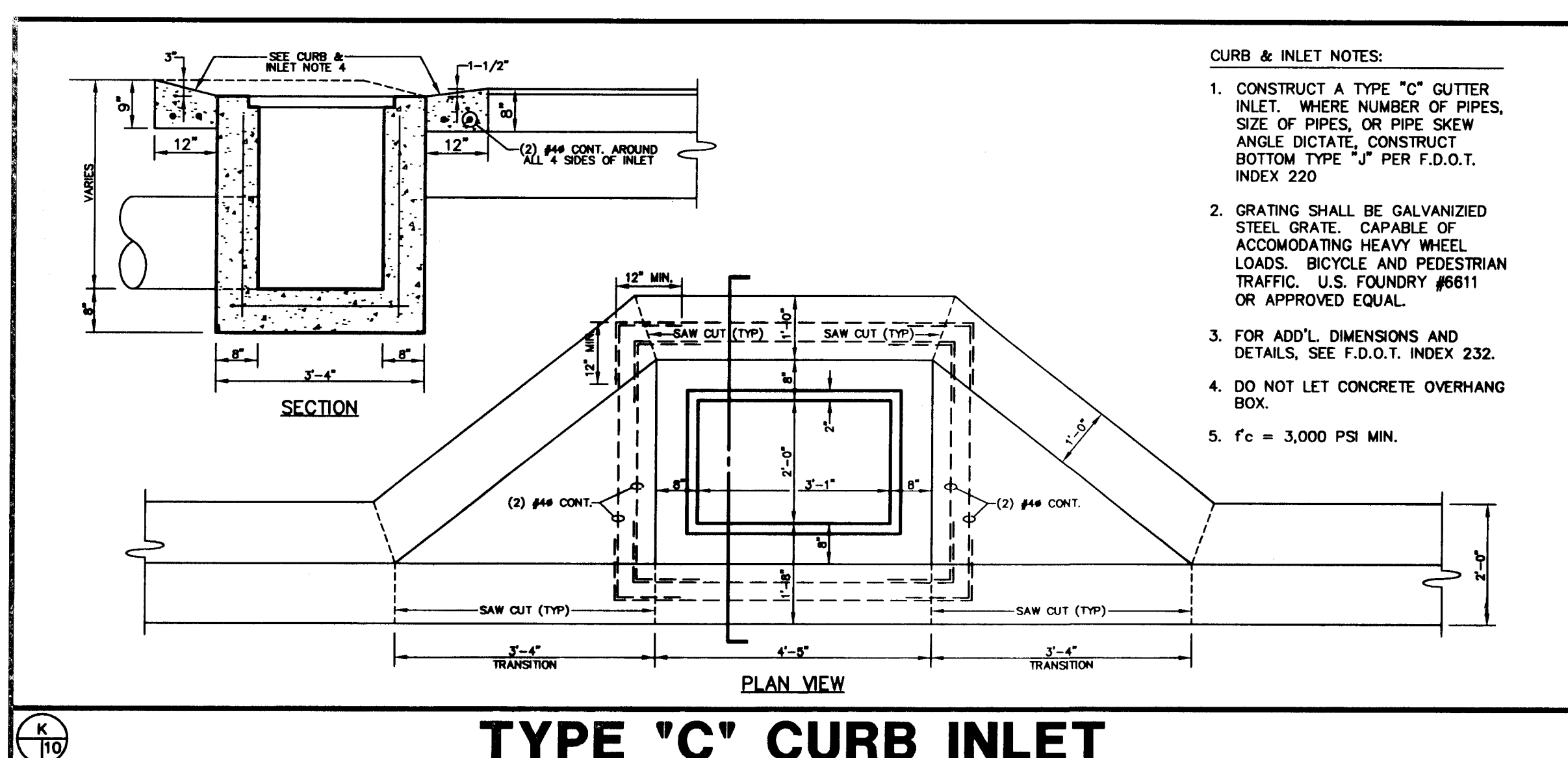
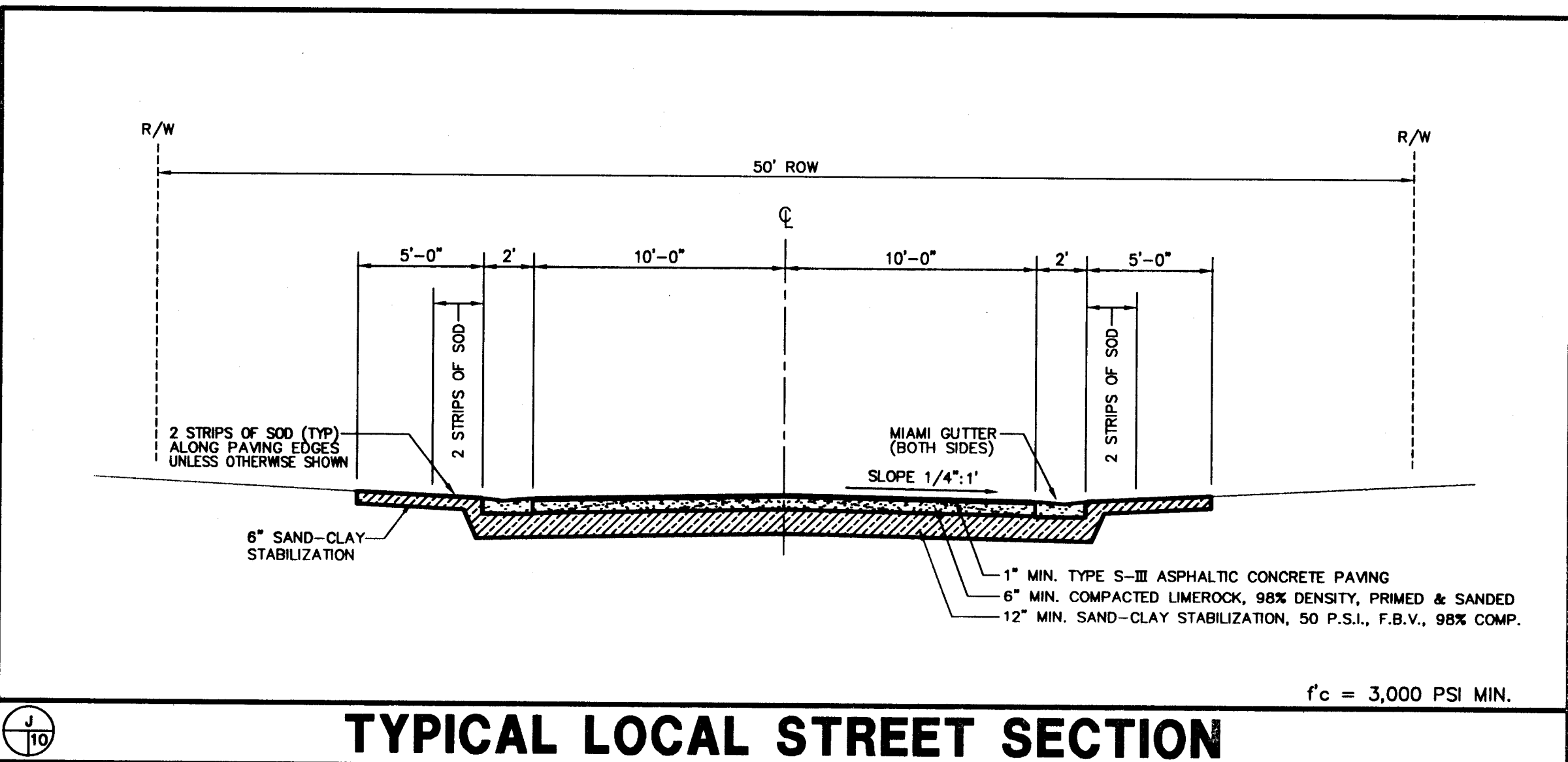
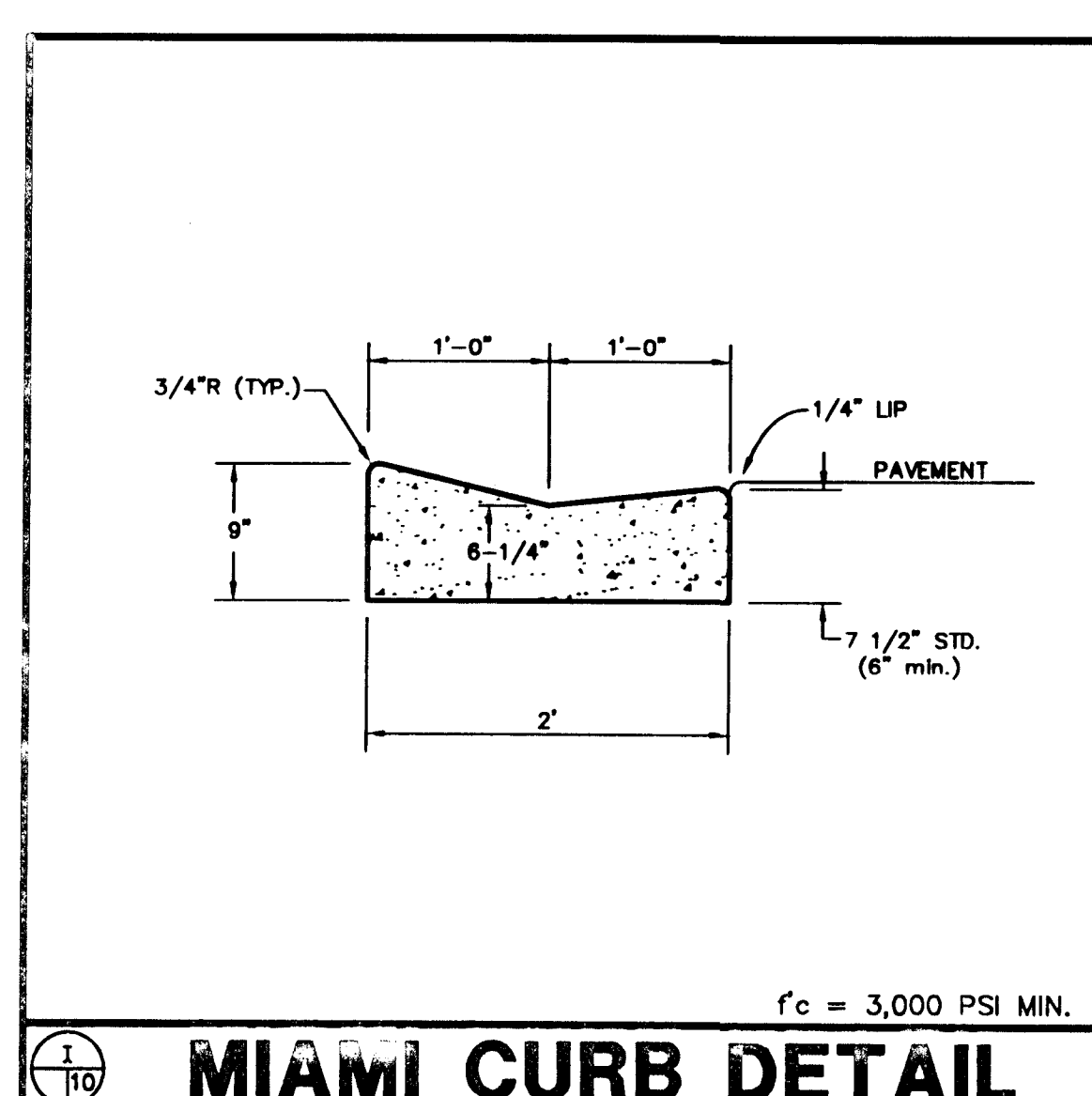
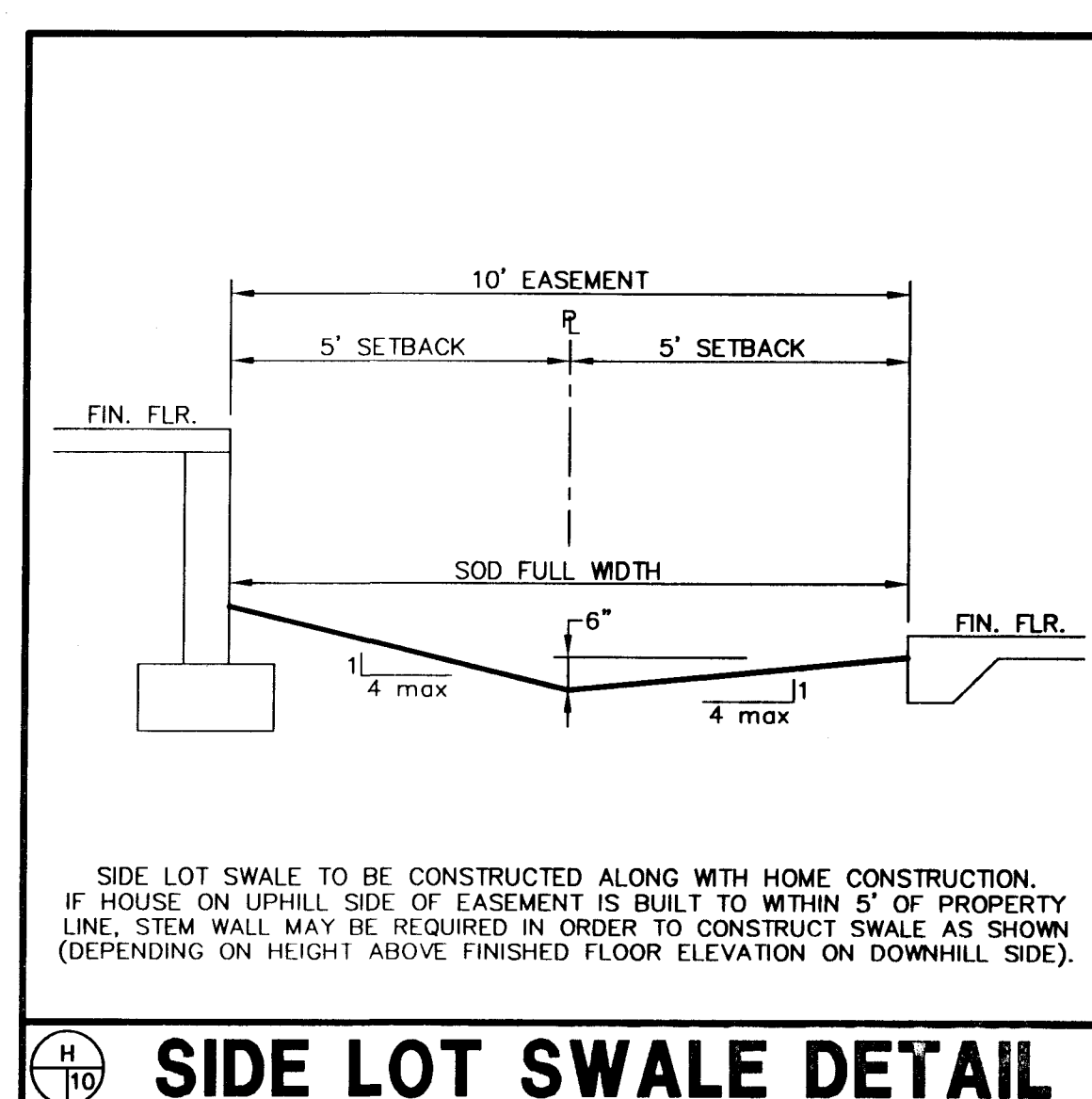
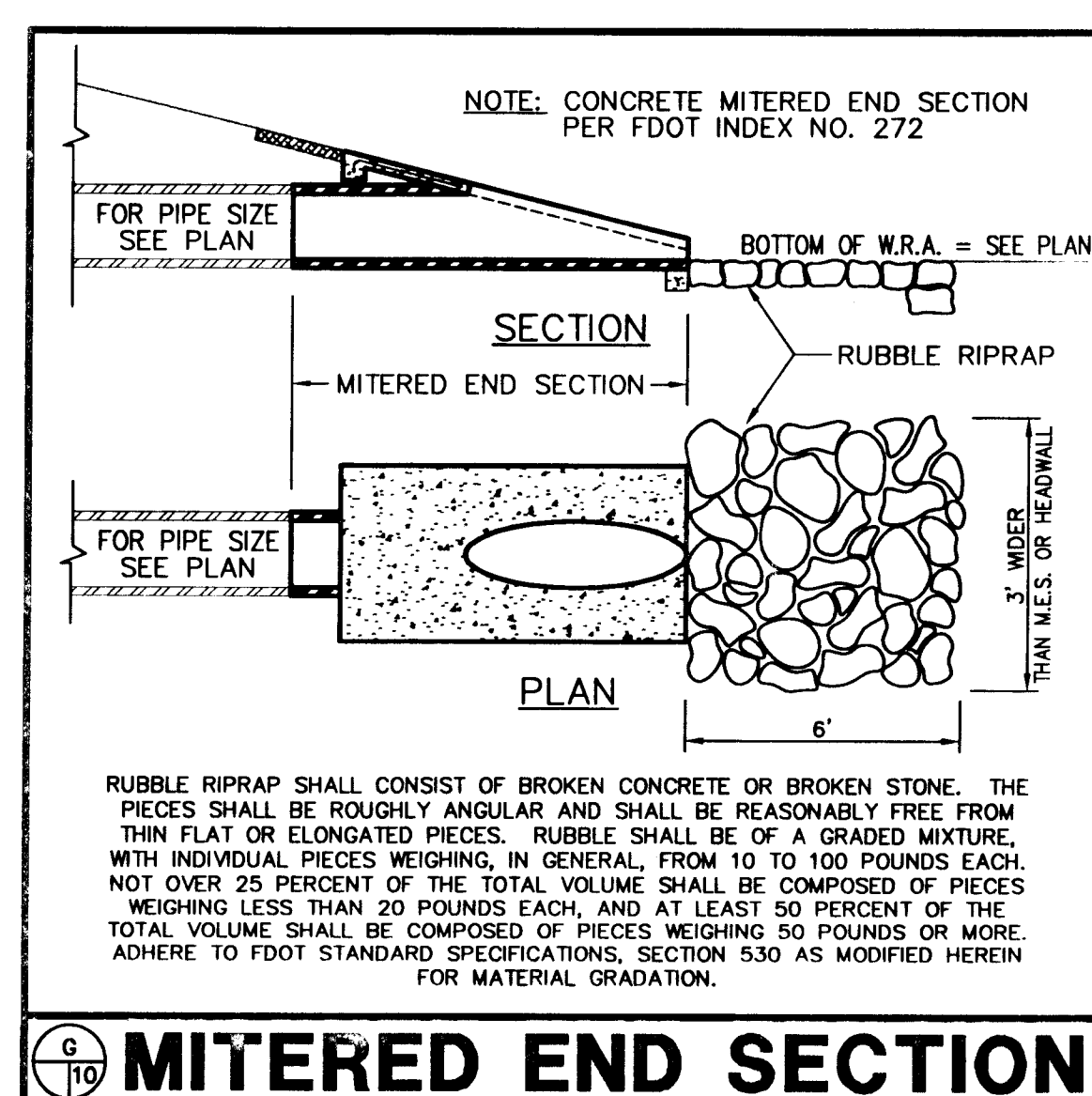
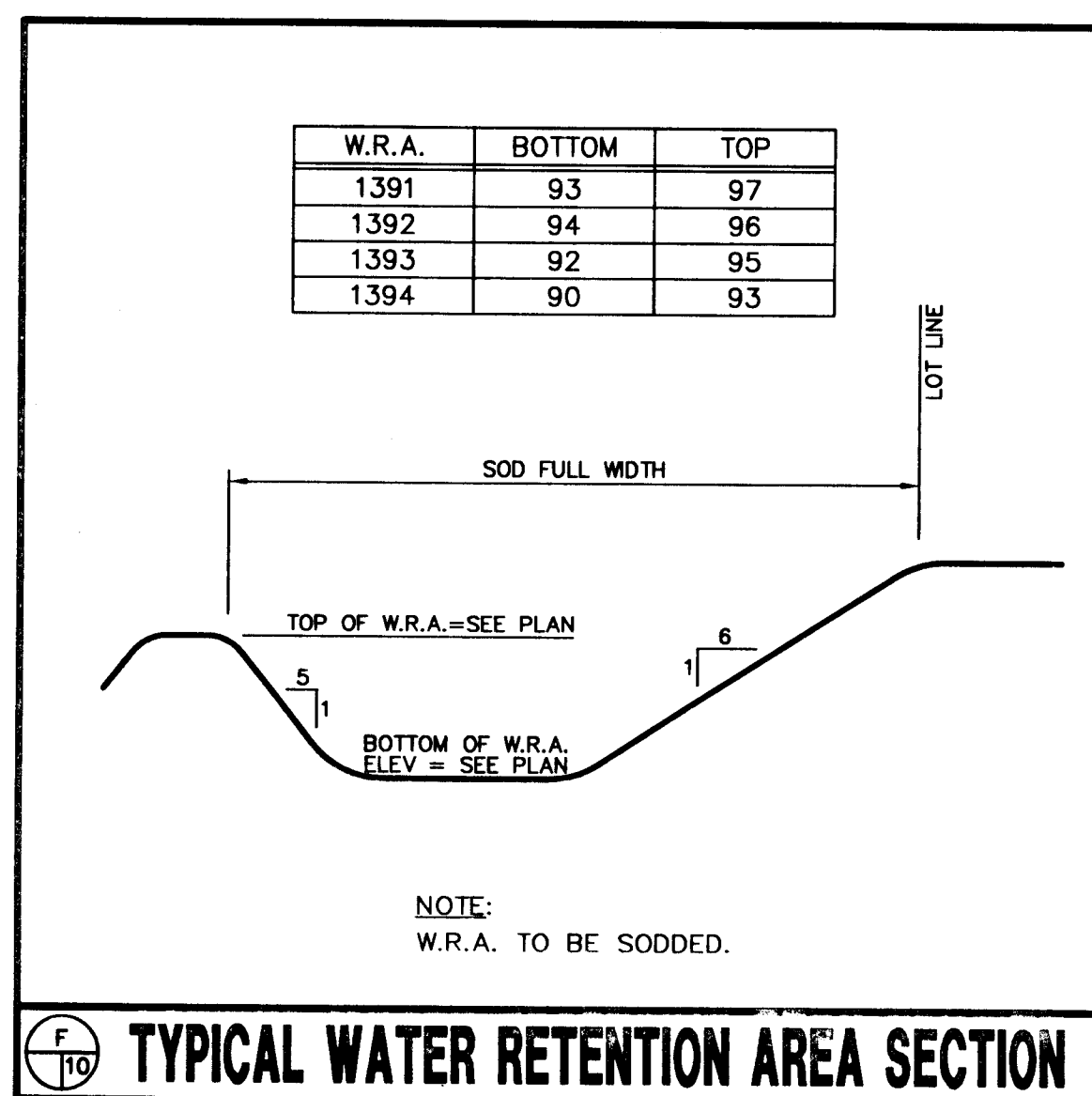
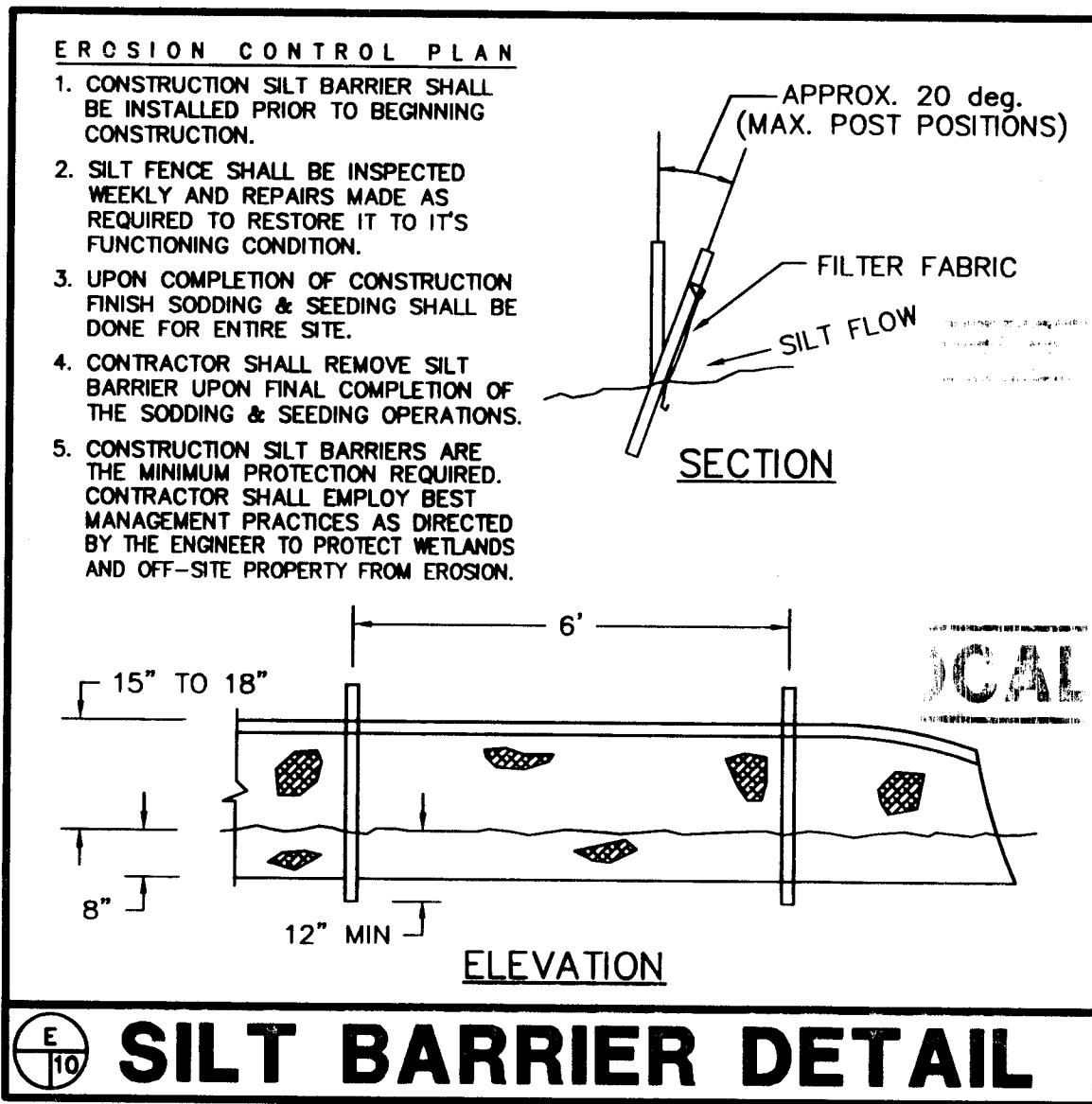
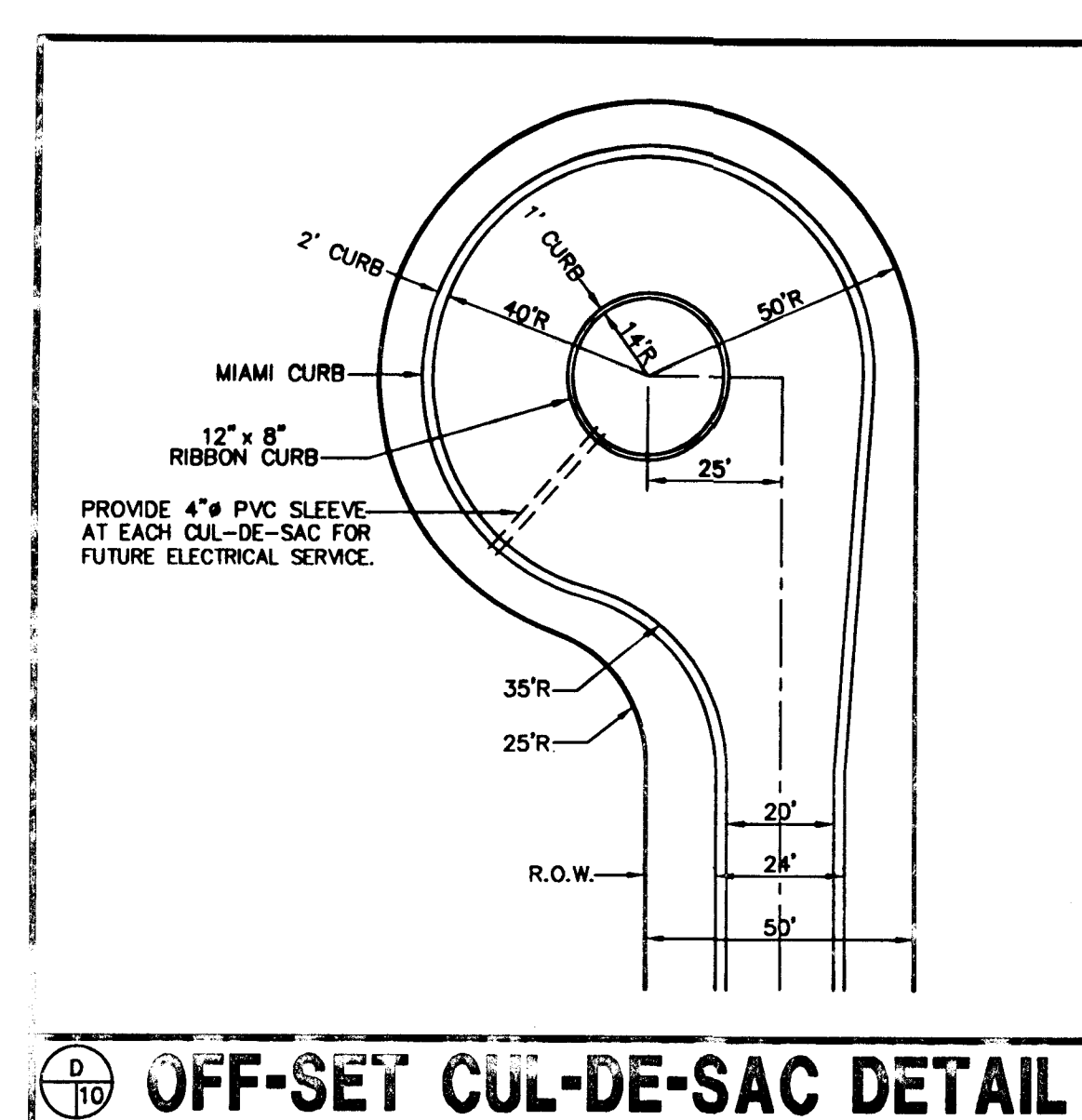
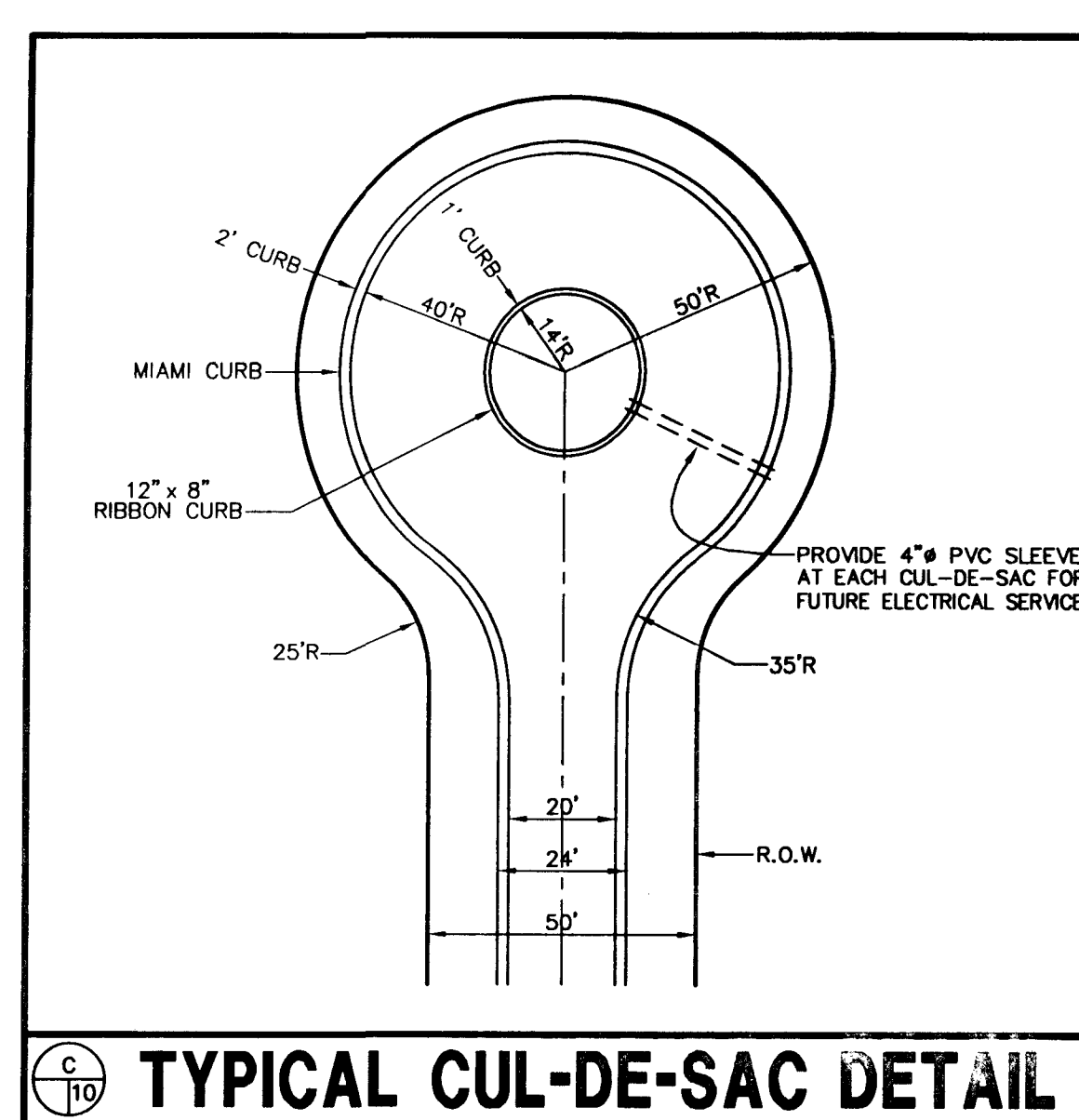
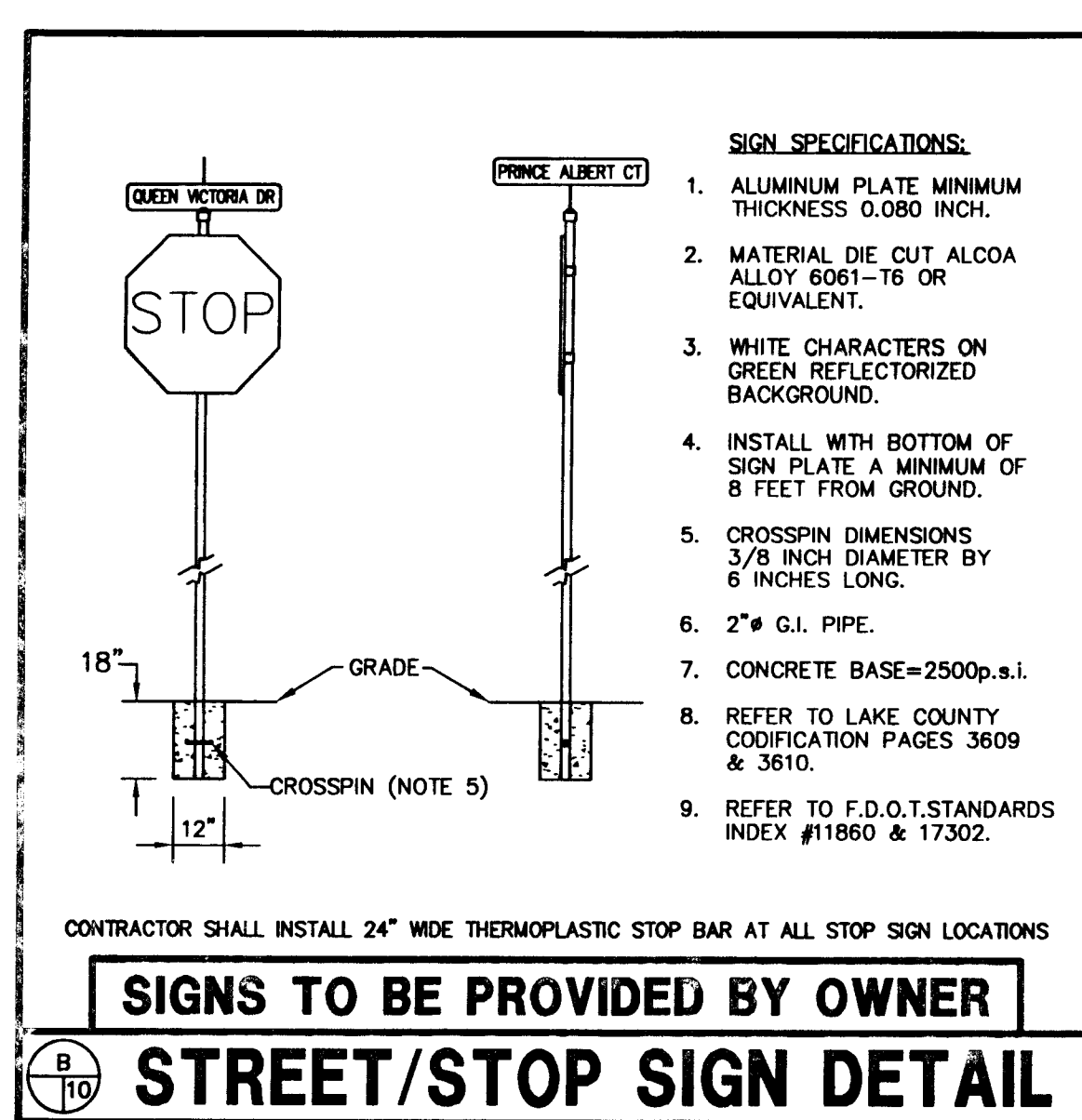
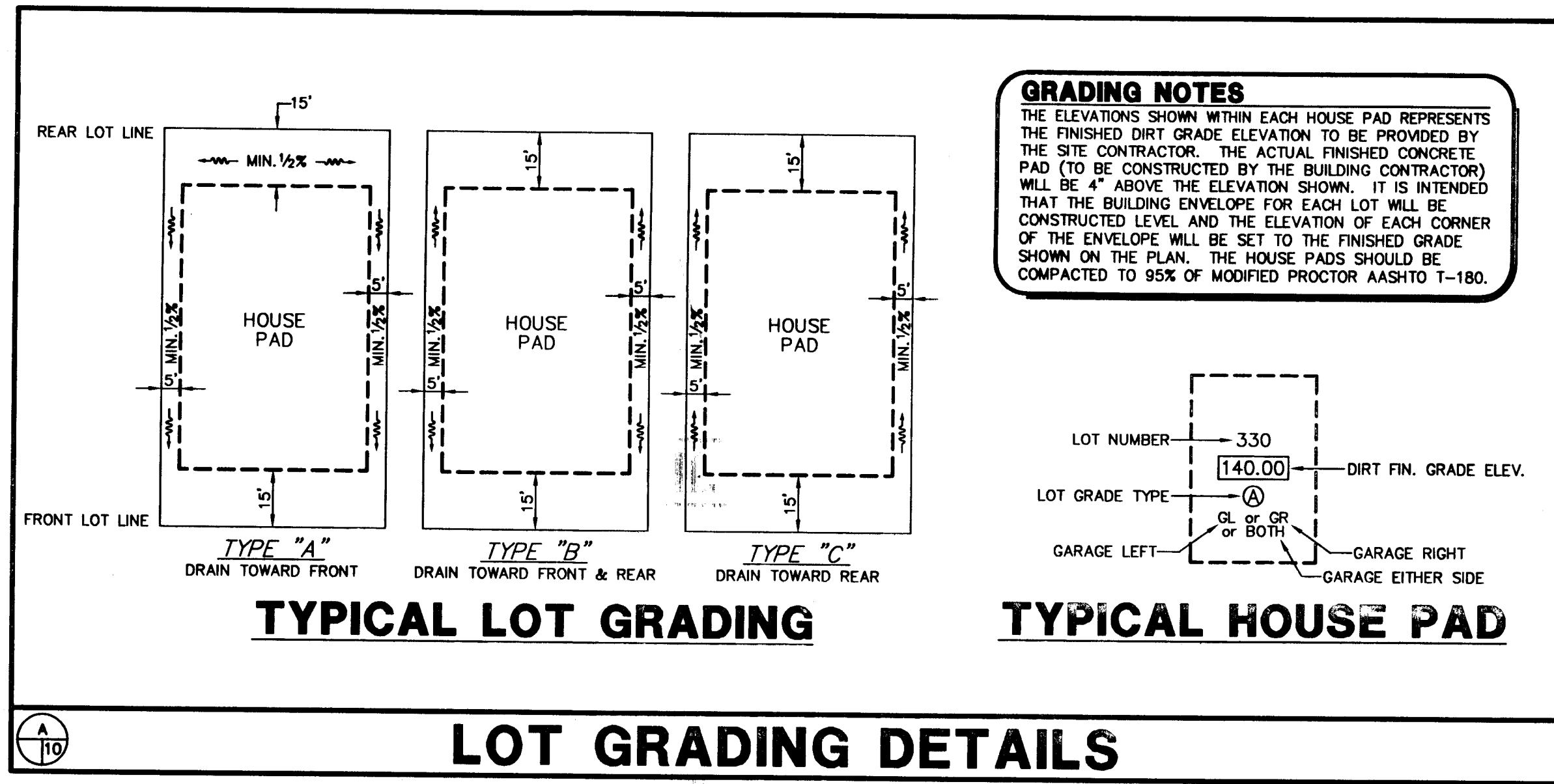
RIDDLE NEWMAN ENGINEERING INC.
 ESTABLISHED 1961

DRAWN	R.S.H.	REV #5
CHECKED	K.E.R.	REV #4
SCALE	1"=6'	REV #3
DATE	5/3/02	REV #2
PROJECT NO.	93092	REV #1

LIFT STATION DETAILS
 ROYAL HIGHLANDS - PHASE 2B
 LAKE COUNTY
 FLORIDA

SHEET NO.
 9
 18

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 CA# 00002883

RIDDLE - NEWMAN ENGINEERING, INC.
 ESTABLISHED 1971

DATE: 3/27/04
 KEITH E. RIDDLE, P.E.
 FLA. REGIS. NO. 38800

REVISIONS:

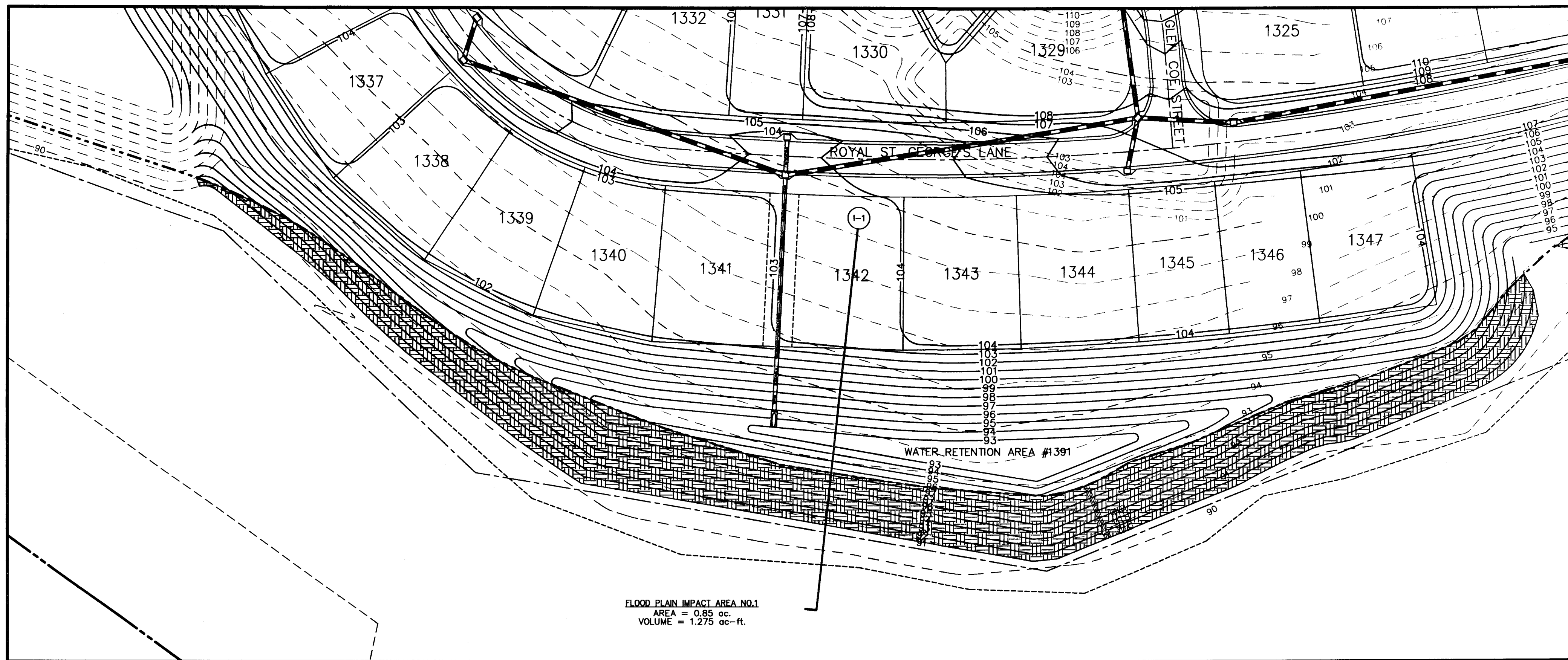
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2/19/04 <td>REV #5 <td>FINAL AS-BUILTS PER CONTRACTOR</td> </td>	REV #5 <td>FINAL AS-BUILTS PER CONTRACTOR</td>	FINAL AS-BUILTS PER CONTRACTOR
7/10/02 <td>REV #4 <td>REVISED PER LAKE COUNTY & SANMID</td> </td>	REV #4 <td>REVISED PER LAKE COUNTY & SANMID</td>	REVISED PER LAKE COUNTY & SANMID
	REV #3 <td></td>	
	REV #2 <td></td>	
5/3/02 <td>REV #1 <td>REVISED PER LAKE COUNTY & SANMID</td> </td>	REV #1 <td>REVISED PER LAKE COUNTY & SANMID</td>	REVISED PER LAKE COUNTY & SANMID

PROJECT NO. 93092

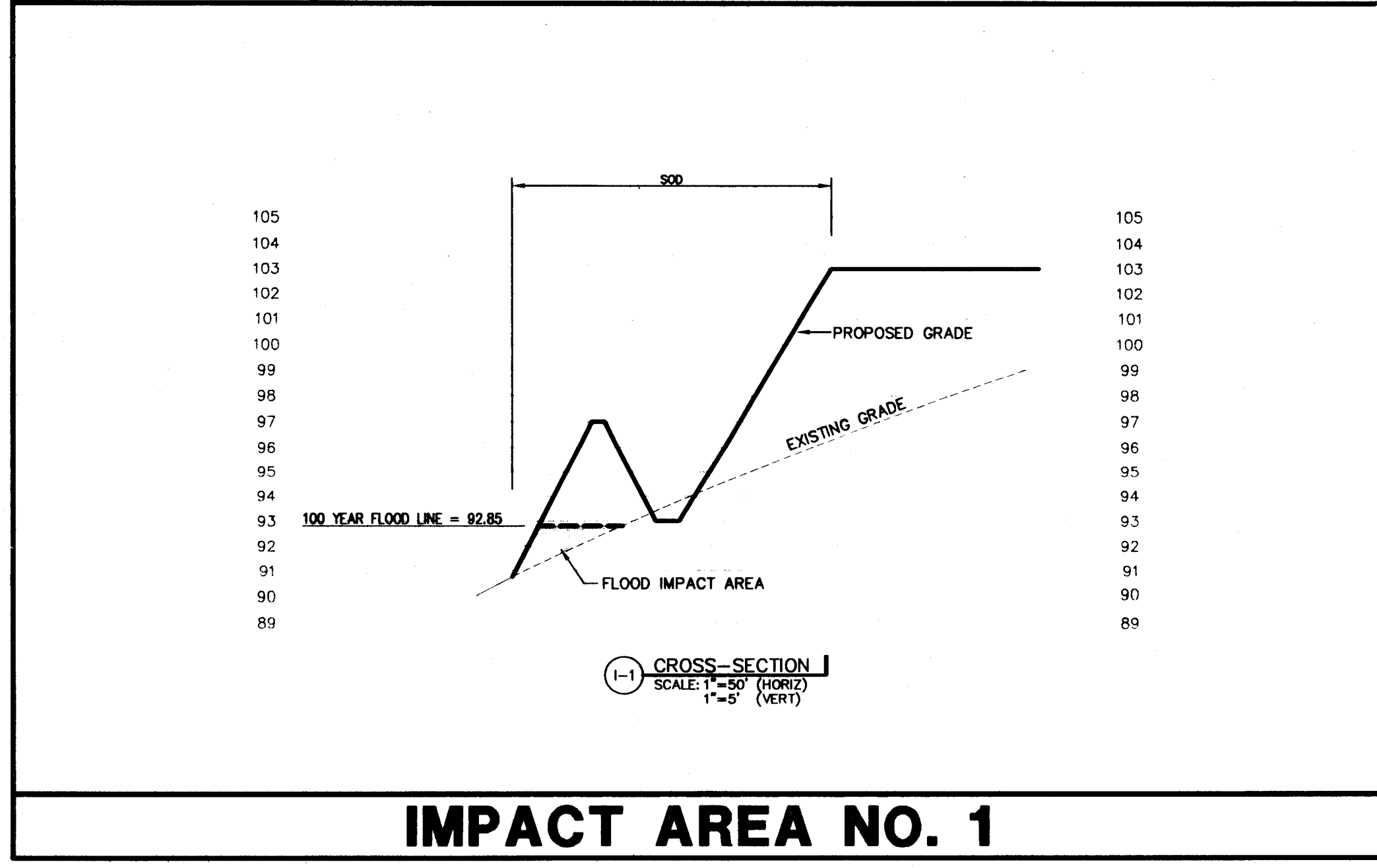
ROYAL HIGHLANDS - PHASE 2B
 FLORIDA
 LAKE COUNTY

DETAIL SHEET

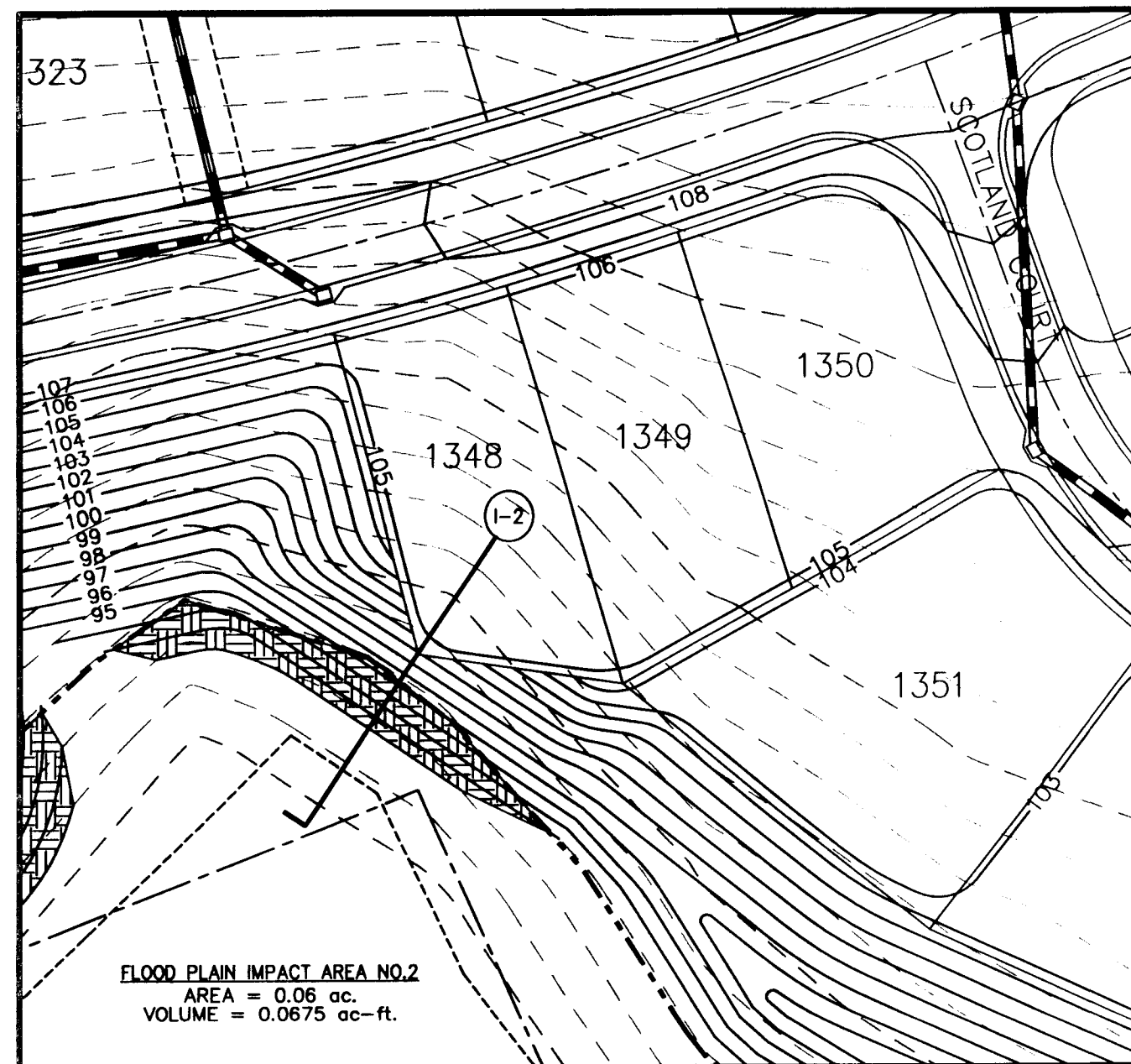
SHEET NO. 10 OF 18



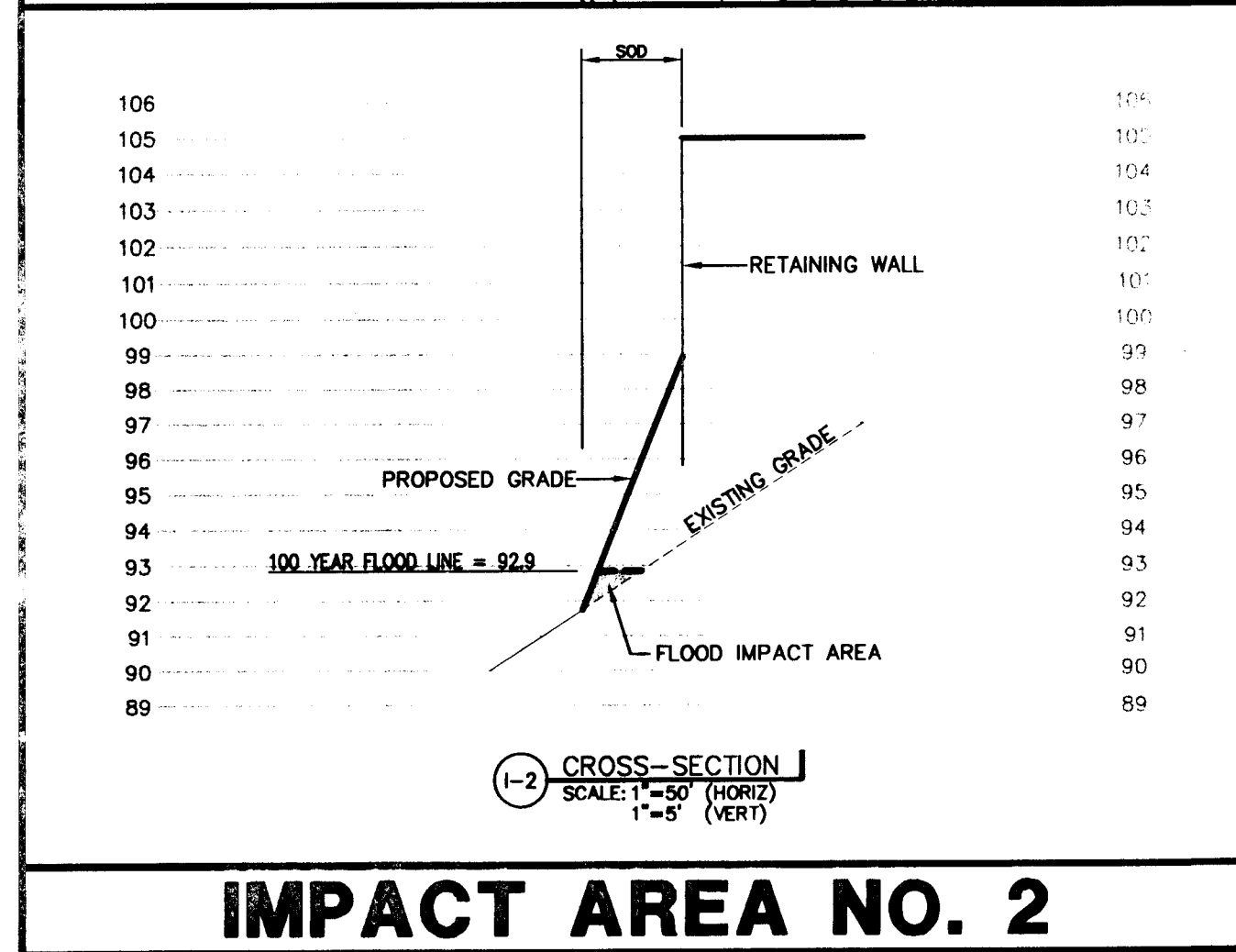
FLOOD PLAIN IMPACT AREA NO.1
 AREA = 0.85 ac.
 VOLUME = 1.275 ac-ft.



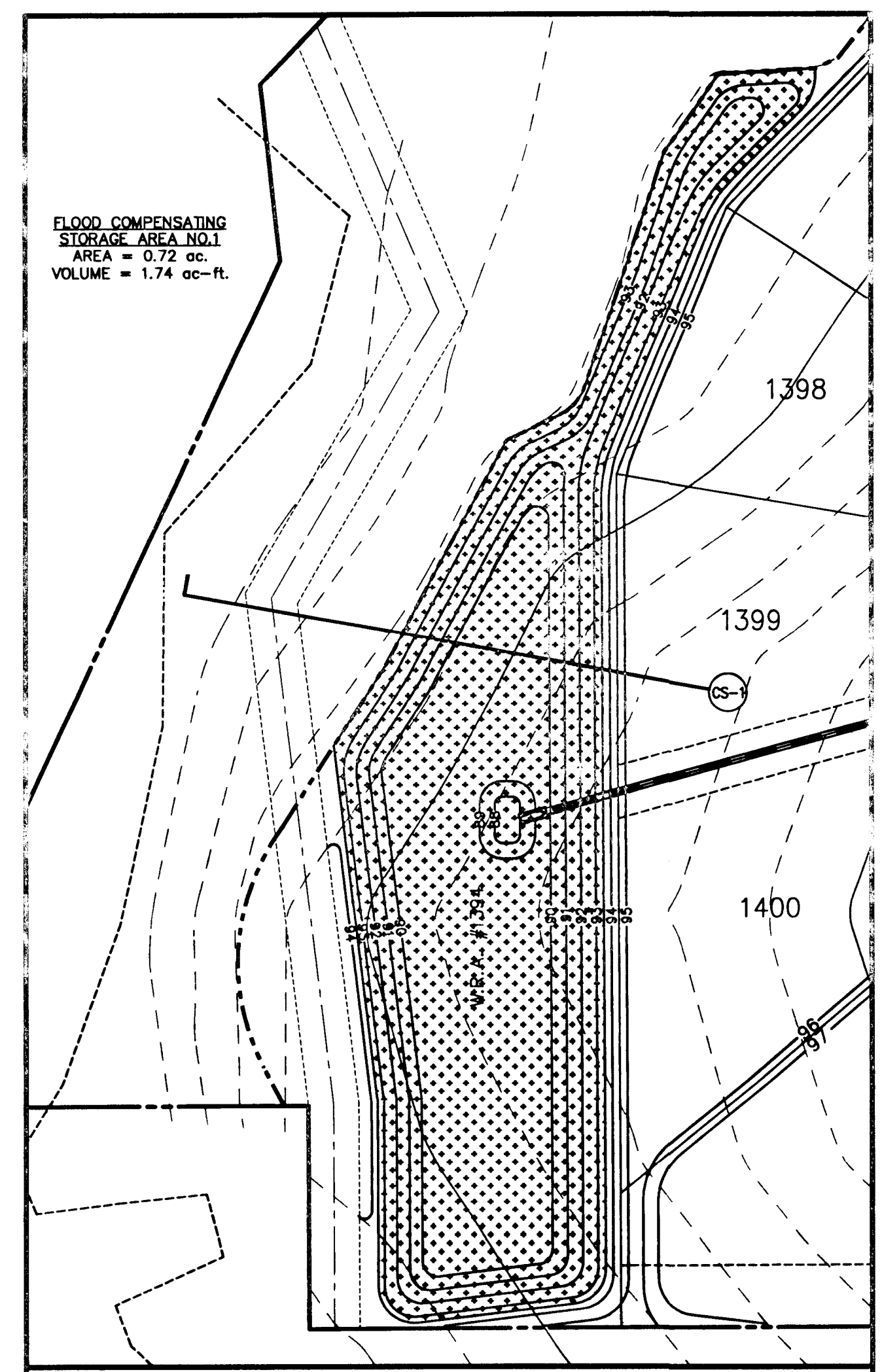
IMPACT AREA NO. 1



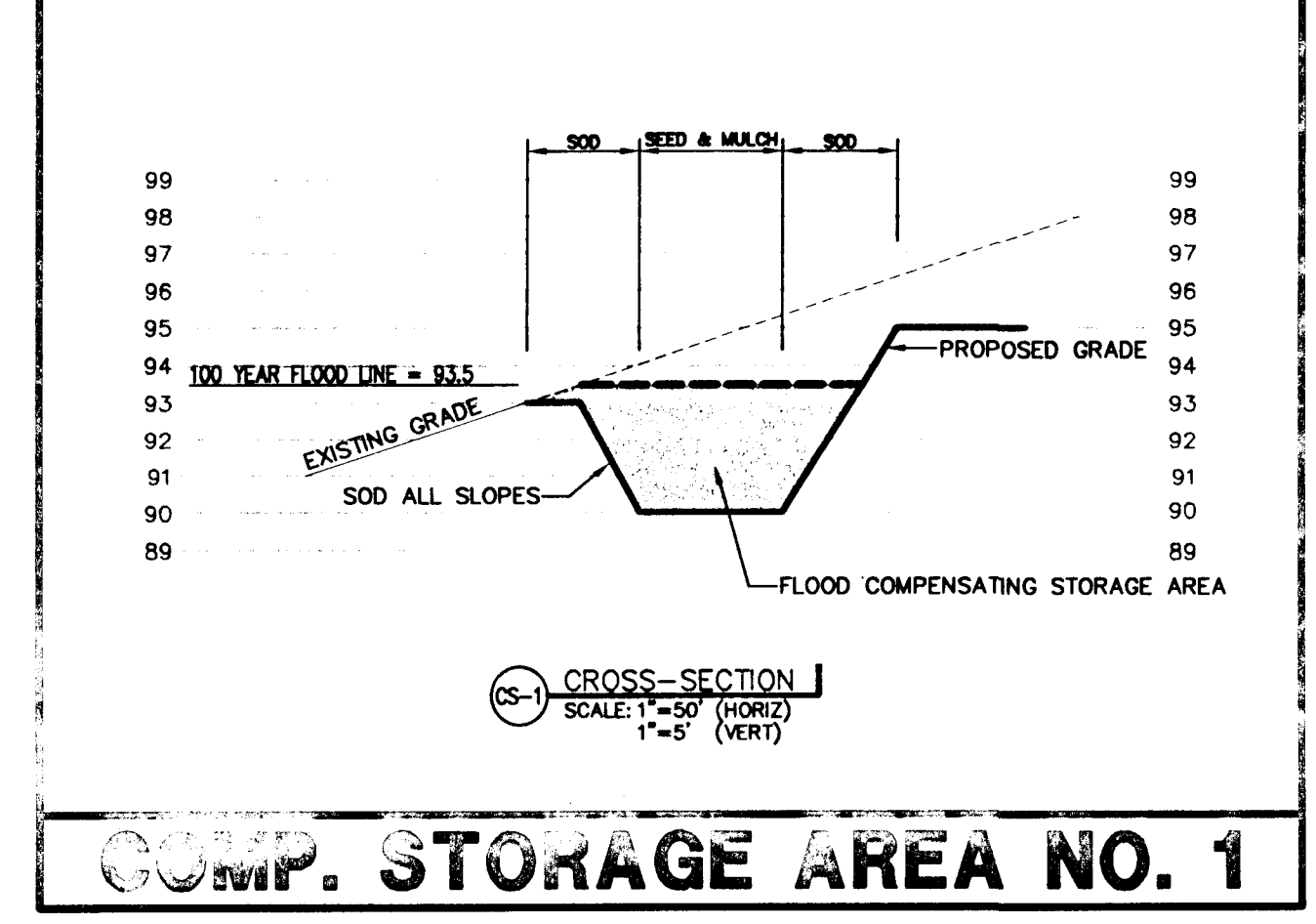
FLOOD PLAIN IMPACT AREA NO.2
 AREA = 0.06 ac.
 VOLUME = 0.0675 ac-ft.



IMPACT AREA NO. 2



FLOOD COMPENSATING STORAGE AREA NO.1
 AREA = 0.72 ac.
 VOLUME = 1.74 ac-ft.



COMP. STORAGE AREA NO. 1

SCALE 1"=60'

AS BUILT

KEITH E. RIDDLE, P.E.
 FLA. REGIS. NO. 38800
 DATE 3/22/04

FILE: \33092-28\IN-PR-28-11
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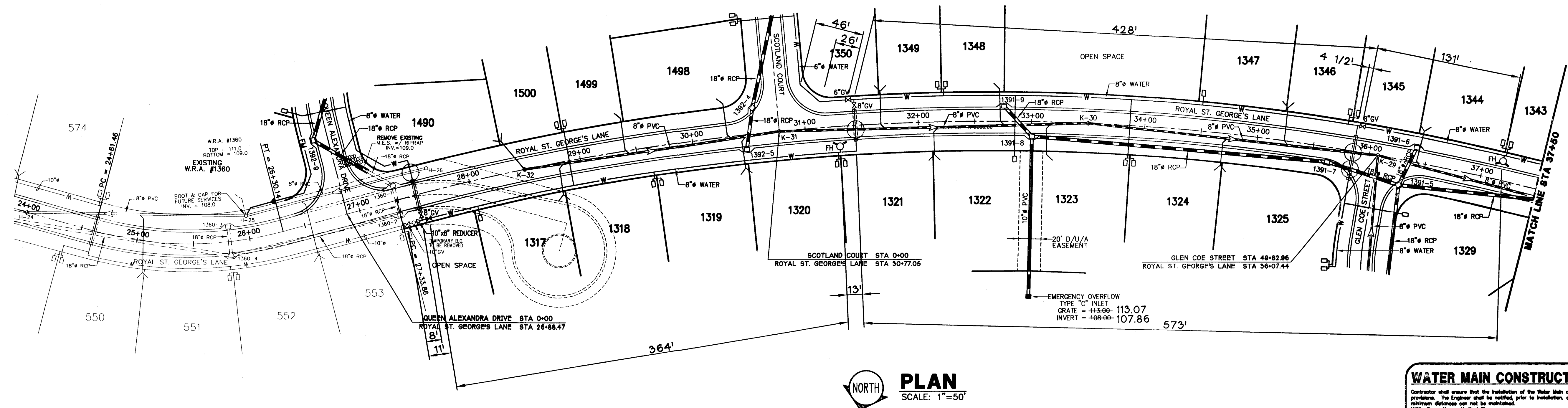
DRAWN	R.S.H.	REV #3
CHECKED	K.E.R.	REV #4
SCALE	1"=50'	REV #5
DATE	5/3/02	REV #6
PROJECT NO	93092	REV #7

RIDDLE NEWMAN ENGINEERING INC.
 ESTABLISHED 1971

FLOOD IMPACT AREA & COMPENSATING STORAGE AREA DETAIL SHEET
ROYAL HIGHLANDS - PHASE 2B
 FLORIDA
 LAKE COUNTY

FINAL AS-BUILTS PER CONTRACTOR 2/19/04
 REVISED PER LAKE COUNTY & SRWMD 7/10/02

11
 18



PLAN
SCALE: 1"=50'

WATER MAIN CONSTRUCTION NOTE

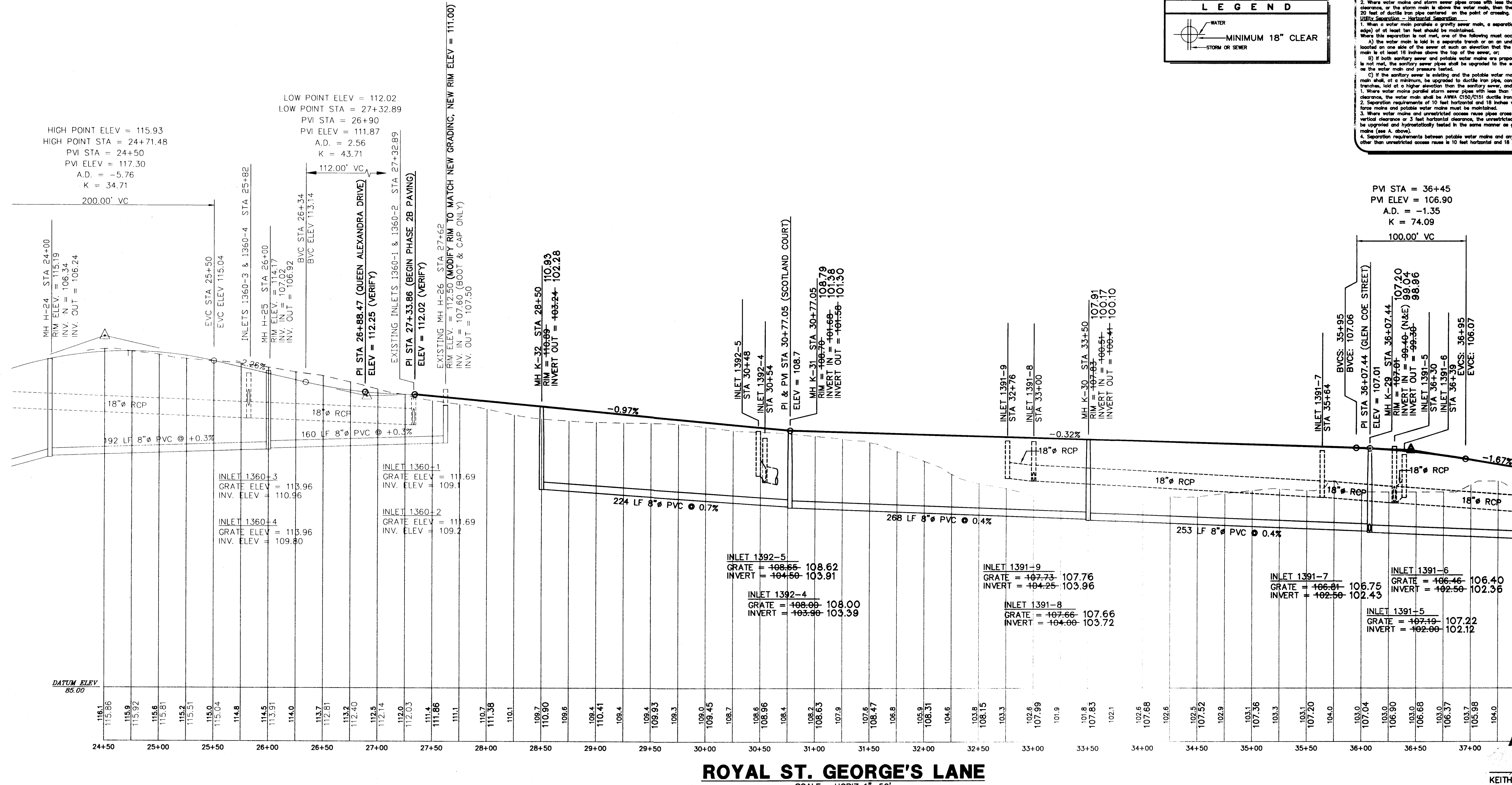
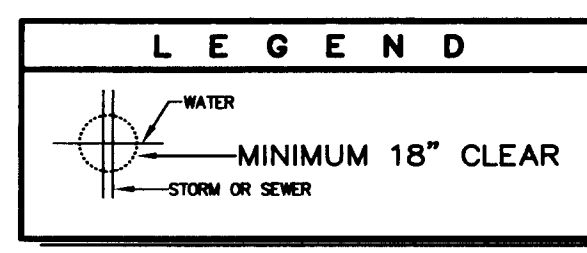
Contractor shall ensure that the installation of the Water Main complies with the following provisions. The Engineer shall be notified, prior to installation, of all locations where the minimum clearance can not be maintained.

Utility Separation - Vertical Separation

- When water main and storm sewer pipe cross with less than 18 inches vertical clearance, the storm sewer shall be above the water main, then the water main shall be 20 feet, centered on the point of crossing, of either:
 - ductile iron pipe and hydrostatically pressure tested; or
 - concrete encased in
- PVC pipe upgraded to water main standards and pressure tested.
- When water main and storm sewer pipe cross with less than 18 inches vertical clearance, or the storm main is above the water main, then the water main shall be 20 feet of ductile iron pipe centered on the point of crossing.

Utility Separation - Horizontal Separation

- When a water main parallels a gravity sewer main, a separation (measured edge to edge) of at least ten feet shall be maintained.
- Where this separation is not met, one of the following must occur:
 - The water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer;
 - If both sanitary sewer and potable water mains are proposed and the above (A) is not met, the sanitary sewer pipe shall be upgraded to the equivalent pipe material as the water main and pressure tested;
 - If the sanitary sewer is existing and the potable water main is proposed, the water main shall be at a minimum, upgraded to ductile iron pipe, constructed in separate trenches, laid at a higher elevation than the sanitary sewer, and offset staggered joints.
- When water main parallels storm sewer pipe with less than 10 feet horizontal clearance, the water main shall be AWWA C150/C151 ductile iron in three locations.
- Separation requirements of 10 feet horizontal and 18 inches vertical clearance between force mains and potable water mains must be maintained.
- When water main and unrestricted access manhole pipe cross with less than 18 inches vertical clearance or 3 feet horizontal clearance, the unrestricted access manhole shall be upgraded and hydrostatically tested to the same manner as gravity sanitary sewer mains (see A. above).
- Separation requirements between potable water mains and any type of manhole other than unrestricted access manhole is 10 feet horizontal and 18 inches vertical clearance.



ROYAL ST. GEORGE'S LANE
SCALE: HORIZ 1"=50'
VERT 1"=5'

PVI STA = 36+45
PVI ELEV = 106.90
A.D. = -1.35
K = 74.09
100.00' VC

AS BUILT
DATE: 3/12/04
KEITH E. RIDDLE, P.E.
FLA. REGIS. NO. 38800

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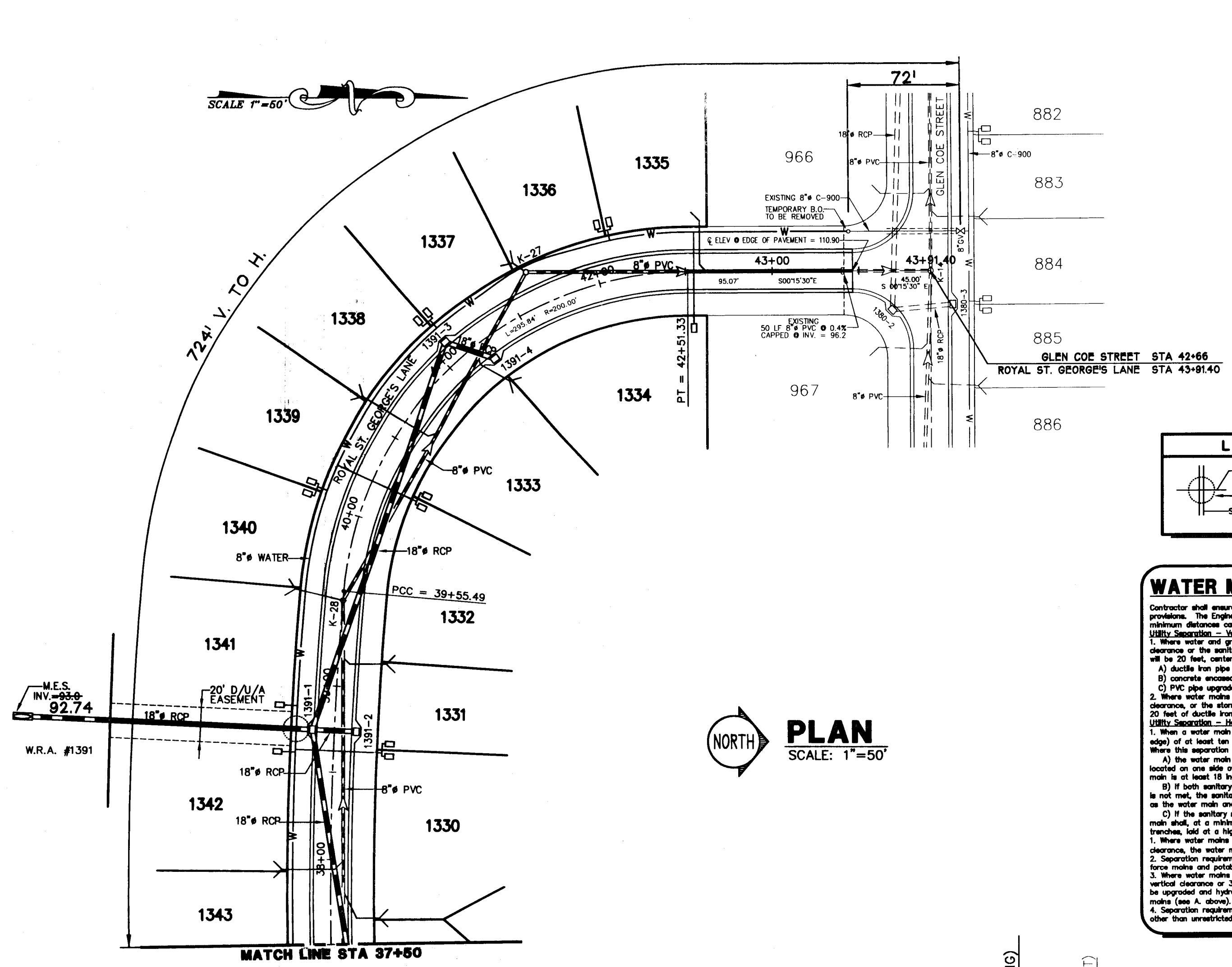
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PLAN & PROFILE - ROYAL ST. GEORGE'S LANE
 ROYAL HIGHLANDS - PHASE 2B
 LAKE COUNTY
 FLORIDA

REV #5	REV #4	REV #3	REV #2	REV #1
FINAL AS-BUILTS PER CONTRACTOR 2/18/04	SEWER AND PARTIAL WATER AS-BUILT PER CONTRACTOR 12/03	REVISED FIRE HYDRANT LOCATION 6/18/03	REVISED PER LAKE COUNTY & SPRING 7/10/02	

REV 01	7/10/02	REVISED PER LAKE COUNTY & SRWMD
REV 02	8/18/03	REVISED FIRE HYDRANT LOCATION
REV 03	8/18/03	SEWER AND PARTIAL WATER AS-BUILT PER CONTRACTOR
REV 04	2/19/04	FINAL AS-BUILTS PER CONTRACTOR

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 SHEET NO. 13 OF 18



LEGEND

- WATER
- MINIMUM 18" CLEAR
- STORM OR SEWER

WATER MAIN CONSTRUCTION NOTE

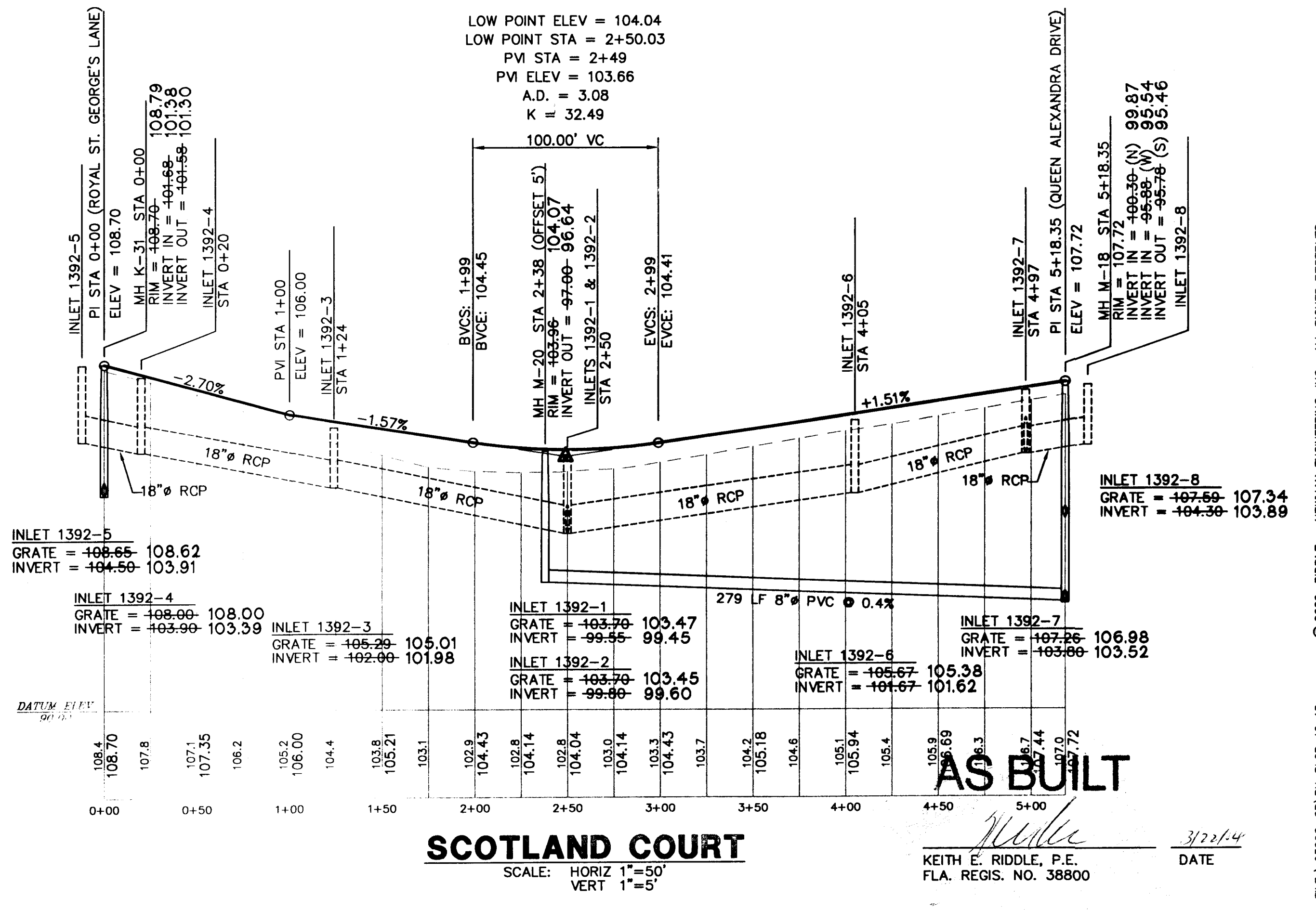
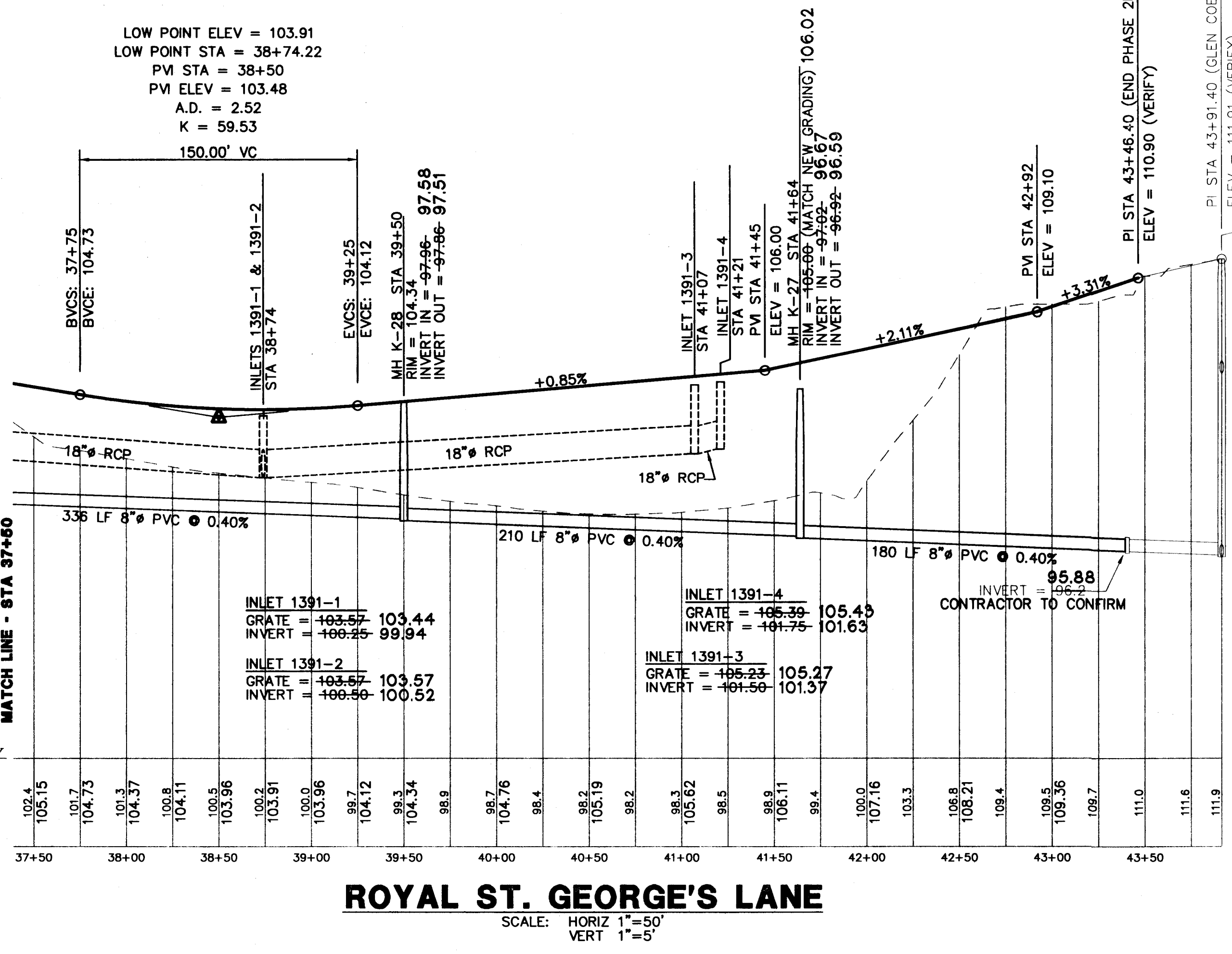
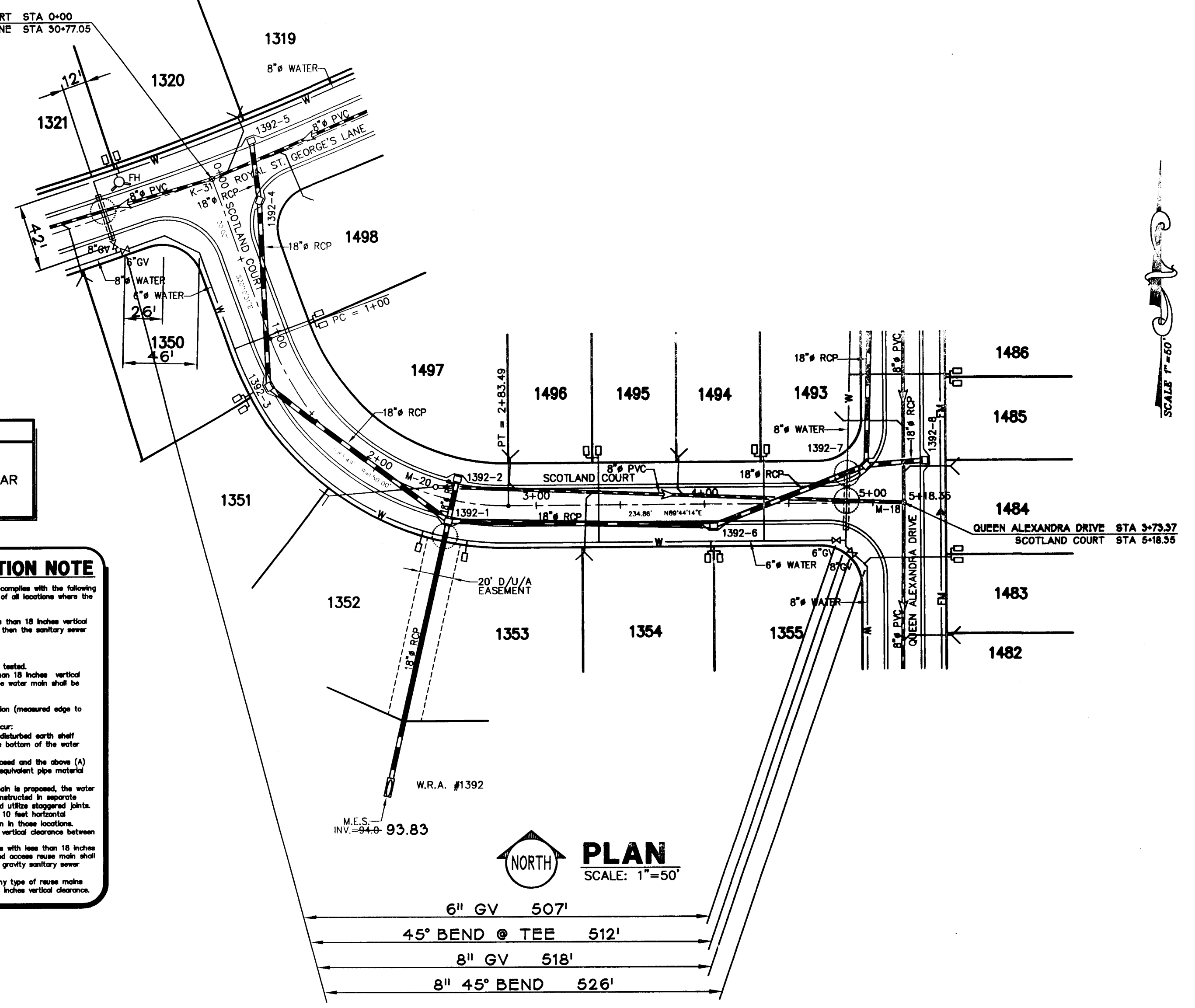
Contractor shall ensure that the installation of the water main complies with the following provisions. The Engineer shall be notified, prior to installation, of all locations where the minimum clearance cannot be maintained.

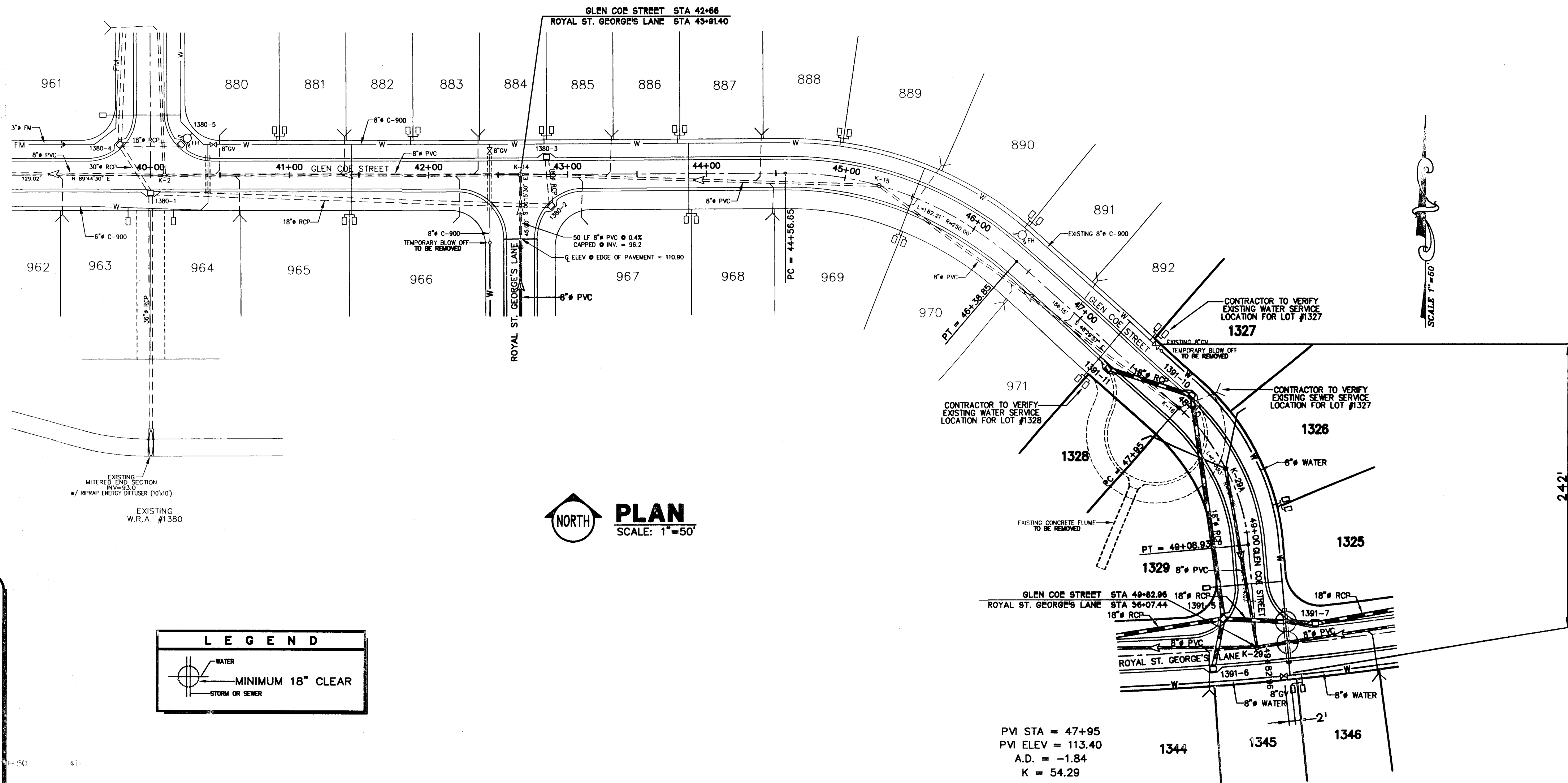
Utility Separation - Vertical Separation

- Where water and gravity sanitary sewer mains cross with less than 18 inches vertical clearance, the sanitary sewer main shall be above the water main, then the sanitary sewer will be 20 feet, centered on the point of crossing, of either:
 - ductile iron pipe and hydrostatically pressure tested; or
 - concrete encased; or
 - PVC pipe encased in water main standards and pressure tested.
- Where water mains and storm sewer pipe cross with less than 18 inches vertical clearance, or the storm main is above the water main, then the water main shall be 20 feet of ductile iron pipe centered on the point of crossing.

Utility Separation - Horizontal Separation

- When a water main parallels a gravity sewer main, a separation (measured edge to edge) of at least ten feet should be maintained. Where this separation is not met, one of the following must occur:
 - The water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer; or
 - If both sanitary sewer and potable water mains are proposed and the above (A) is not met, the sanitary sewer pipe shall be upgraded to the equivalent pipe material as the water main and pressure tested.
 - If the sanitary sewer is existing and the potable water main is proposed, the water main shall, at a minimum, be upgraded to ductile iron pipe, constructed in separate trenches, laid at a higher elevation than the sanitary sewer, and utilize staggered joints.
- Where water mains and unrestricted access manholes cross with less than 10 feet horizontal clearance, the water main shall be 18 inch CIP/CSI ductile iron in those locations.
- Separation requirements of 10 feet horizontal and 18 inches vertical clearance between water mains and unrestricted access manholes shall be maintained.
- Where water mains and unrestricted access manholes cross with less than 18 inches vertical clearance or 3 feet horizontal clearance, the unrestricted access manhole shall be upgraded and hydrostatically tested in the same manner as gravity sanitary sewer manholes (see A. above).
- Separation requirements between potable water mains and any type of manhole other than unrestricted access manholes is 10 feet horizontal and 18 inches vertical clearance.





PLAN
SCALE: 1"=50'

WATER MAIN CONSTRUCTION NOTE

Contractor shall ensure that the installation of the Water Main complies with the following provisions. The Engineer shall be notified, prior to installation, of all locations where the minimum distances can not be maintained.

Utility Separation - Vertical Clearance

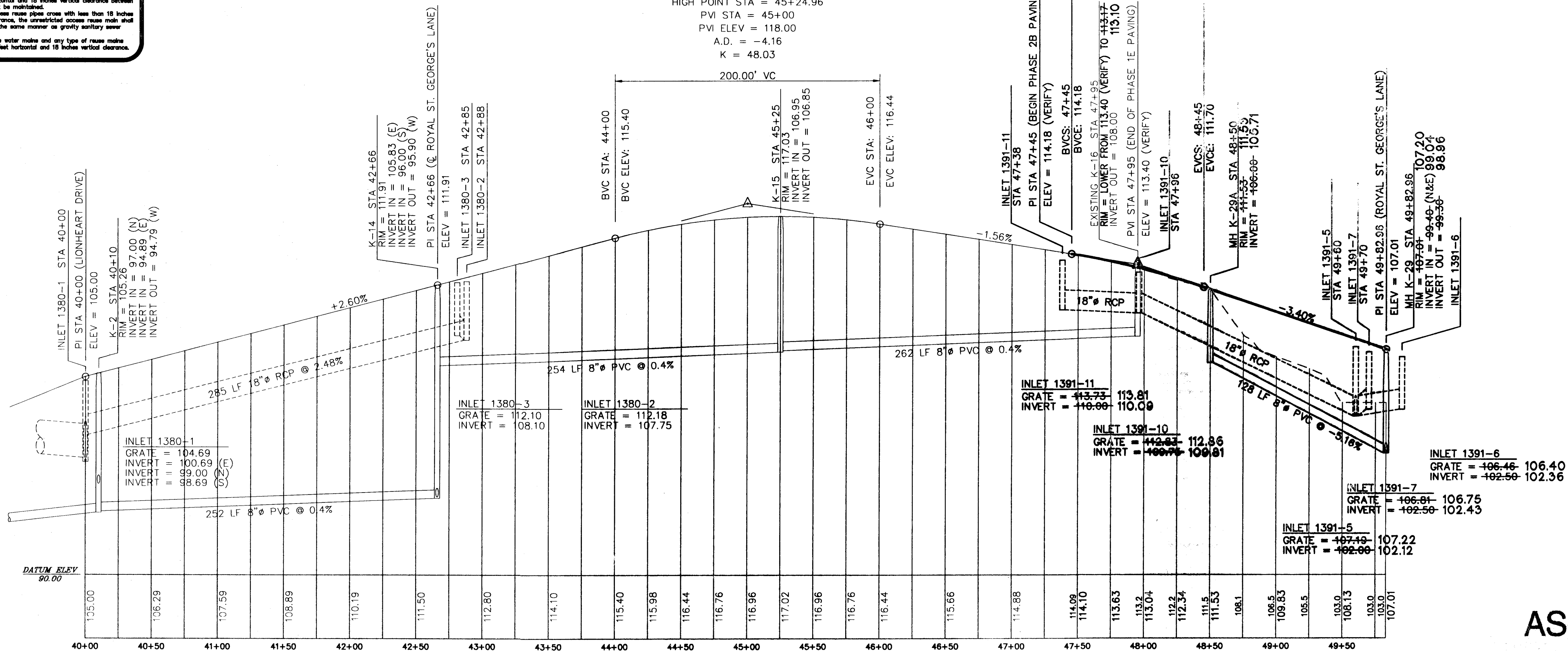
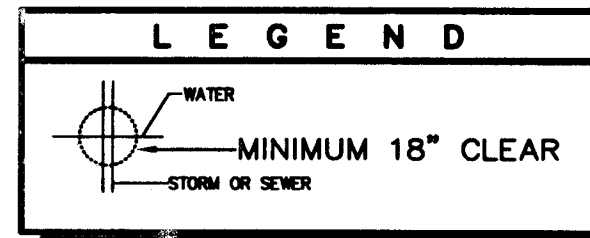
- Where water and gravity sanitary sewer mains cross with less than 18 inches vertical clearance, the sanitary sewer must be above the water main, then the sanitary sewer will be 20 feet, centered on the point of crossing, of other:
 - ductile iron pipe and hydrotestably pressure tested; or
 - concrete encased; or
 - PVC pipe upgraded to water main standards and pressure tested.
- Where water mains and storm sewer pipes cross with less than 18 inches vertical clearance, or the storm main is above the water main, then the water main shall be 20 feet of ductile iron pipe centered on the point of crossing.

Utility Separation - Horizontal Separation

- When a water main parallels a gravity sewer main, a separation (measured edge to edge) of at least ten feet should be maintained.
- Where this separation is not met, one of the following must occur:
 - The water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer; or
 - If both sanitary sewer and potable water mains are proposed and the above (A) is not met, the sanitary sewer pipe shall be upgraded to the equivalent pipe material as the water main and pressure tested.
 - If the sanitary sewer is existing and the potable water main is proposed, the water main shall, at a minimum, be upgraded to ductile iron pipe, constructed in separate trenches, laid at a higher elevation than the sanitary sewer, and utilize staggered joints.
- Where water mains parallel storm sewer pipes with less than 10 feet horizontal clearance, the water main shall be AWWA C150/C151 ductile iron in those locations.

Separation requirements of 10 feet horizontal and 18 inches vertical clearance between force mains and potable water mains must be maintained.

- Where water mains and unrestricted access manholes cross with less than 18 inches vertical clearance or 3 feet horizontal clearance, the unrestricted access manhole shall be upgraded and hydrotestably tested in the same manner as gravity sanitary sewer mains (see A. above).
- Separation requirements between potable water mains and any type of manhole other than unrestricted access manhole is 10 feet horizontal and 18 inches vertical clearance.



GLEN COE STREET
SCALE: HORIZ 1"=50'
VERT 1"=5'

AS BUILT

KEITH E. RIDDLE, P.E.
FLA. REGIS. NO. 38800

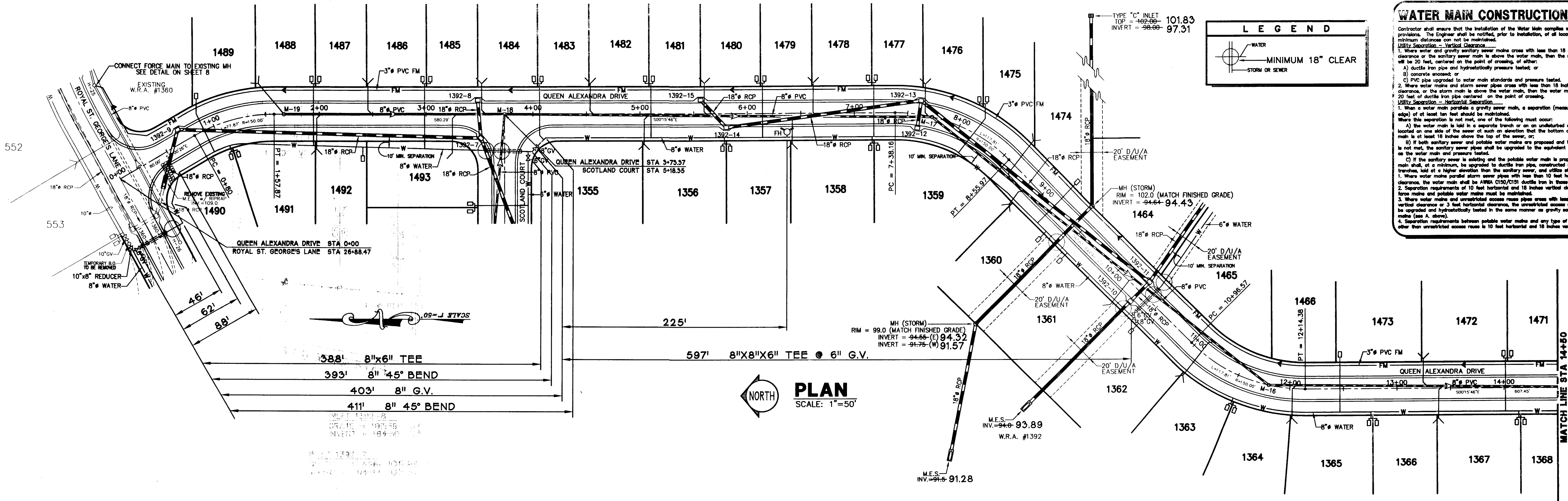
RIDDLE - NEWMAN ENGINEERING, INC.
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 keith@riddlenewman.com
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RIDDLE NEWMAN ENGINEERING INC.
 ESTABLISHED 1971

DATE	REVISION	BY	DESCRIPTION
7/10/02	REV #1	R.S.H.	REVISION PER CONTRACTOR 2/19/04
5/3/02	REV #2	K.E.R.	SEWER AND PARTIAL WATER AS-BUILT PER CONTRACTOR 12/05/01
1"=50'	REV #3		SCALE
5/3/02	REV #4		DATE
9.3092	REV #5		PROJECT NO.

PLAN & PROFILE - GLEN COE STREET
ROYAL HIGHLANDS - PHASE 2B
 FLORIDA
 LAKE COUNTY

FILE: 03092-2B-RH-P2B-12-18
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PLAN
SCALE: 1"=50'

WATER MAIN CONSTRUCTION NOTE

Contractor shall ensure that the installation of the Water Main complies with the following provisions. The Engineer shall be notified, prior to installation, of all locations where the minimum clearances cannot be maintained.

Utility Separation - Vertical Clearance

- Where water and gravity sanitary sewer mains cross with less than 18 inches vertical clearance, the sanitary sewer main shall be above the water main, then the sanitary sewer will be 20 feet, centered on the point of crossing, of either:
 - Ductile iron pipe and hydrostatically pressure tested; or
 - Concrete encased; or
 - PVC pipe upgraded to water main standards and pressure tested.
- Where water mains and storm sewer pipes cross with less than 18 inches vertical clearance, or the storm main is above the water main, then the water main shall be 20 feet of ductile iron pipe centered on the point of crossing.

Utility Separation - Horizontal Clearance

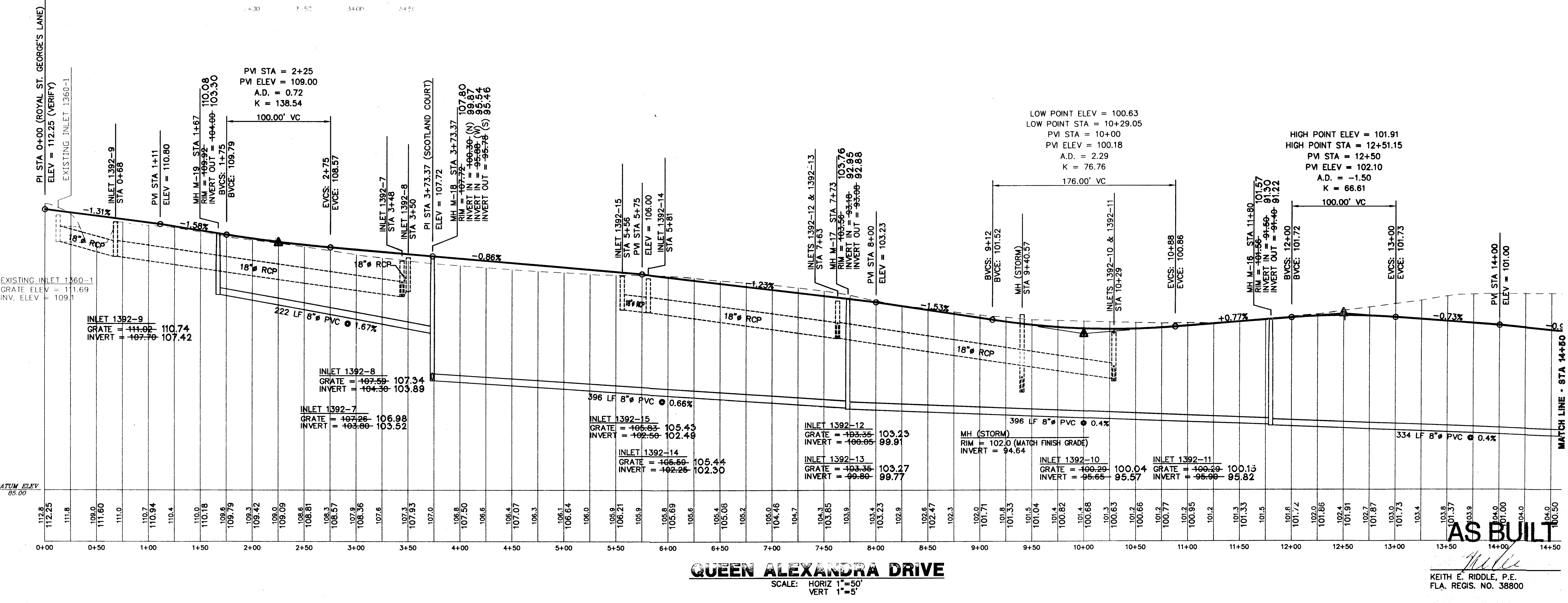
- When a water main parallels a gravity sewer main, a separation (measured edge to edge) of at least ten feet shall be maintained. Where this separation is not met, one of the following must occur:
 - The water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer of such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer; or
 - If both sanitary sewer and potable water mains are proposed and the above (A) is not met, the sanitary sewer pipe shall be upgraded to the equivalent pipe material as the water main and pressure tested.
- If the sanitary sewer is existing and the potable water main is proposed, the water main shall, at a minimum, be upgraded to ductile iron pipe, constructed in separate trenches, laid at a higher elevation than the sanitary sewer, and utilize staggered joints.

Water Main Parallel Storm Sewer Pipes with less than 10 feet horizontal clearance, the water main shall be AWWA C150/C200 ductile iron in those locations.

- Separation requirements of 10 feet horizontal and 18 inches vertical clearance between storm mains and potable water mains must be maintained.
- Where water mains and unrestricted access raise pipe cross with less than 18 inches vertical clearance or 3 feet horizontal clearance, the unrestricted access raise main shall be upgraded and hydrostatically tested in the same manner as gravity sanitary sewer mains (see A, above).
- Separation requirements between potable water mains and any type of raise main other than unrestricted access raise is 10 feet horizontal and 18 inches vertical clearance.

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RIDDLE NEWMAN ENGINEERING INC.
ESTABLISHED 1971



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PLAN & PROFILE - QUEEN ALEXANDRA DRIVE
ROYAL HIGHLANDS - PHASE 2B
LAKE COUNTY FLORIDA

REV 01	REVISED WATER PER CITY	6/3/02
REV 02	REVISED PER LAKE COUNTY & SRWMD	7/10/02
REV 03	SEWER AND PARTIAL WATER AS-BUILT PER CONTRACTOR	12/03/02
REV 04	FINAL AS-BUILTS PER CONTRACTOR	2/19/04
REV 05		

PROJECT NO. 93092DATE 5/3/02
SCALE: 1"=50'
DRAWN: R.S.H.
CHECKED: K.E.R.
PROJECT NO. 93092

WATER MAIN CONSTRUCTION NOTE

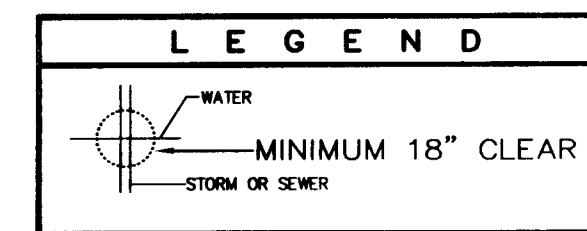
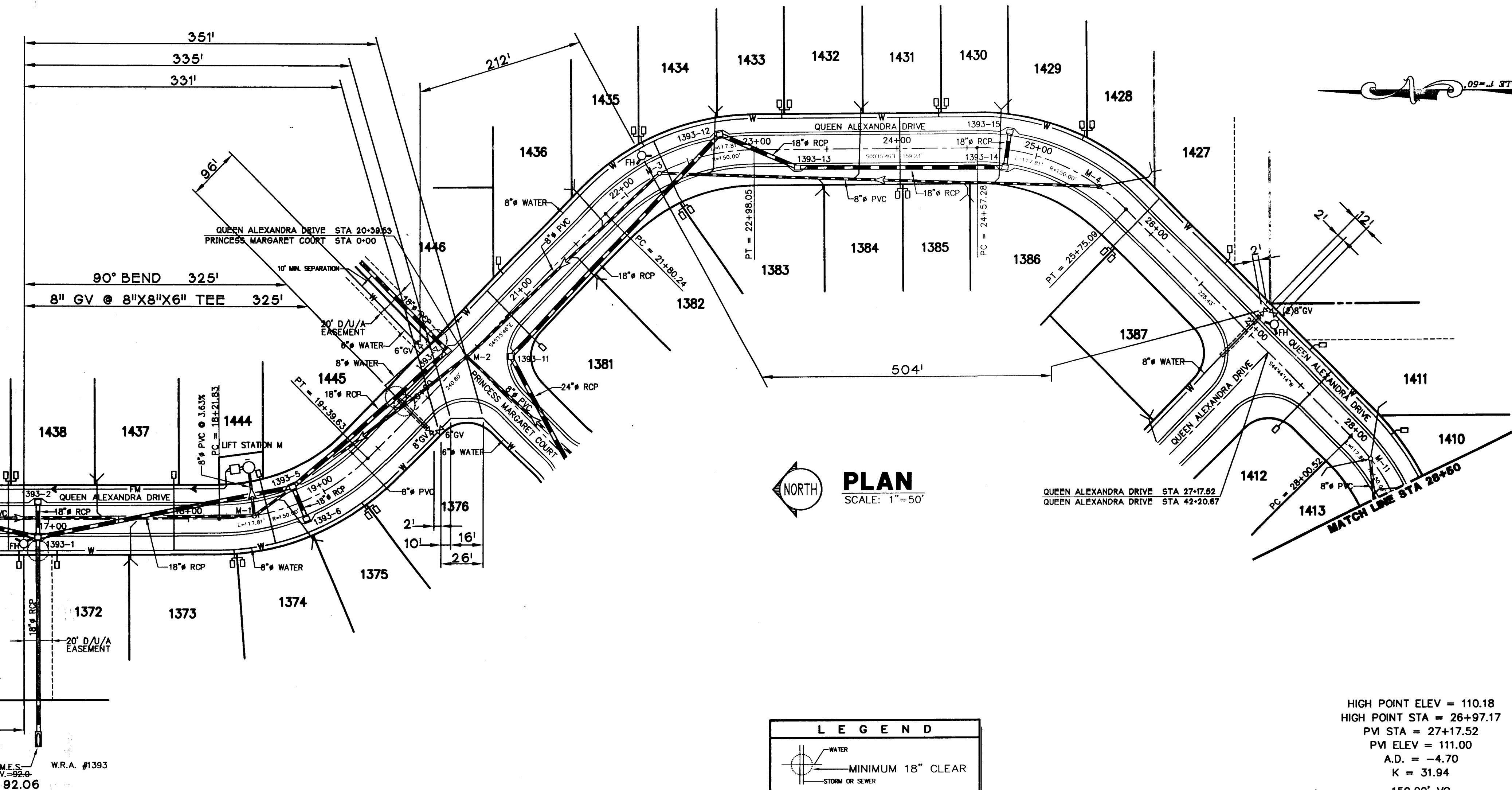
Contractor shall ensure that the installation of the Water Main complies with the following provisions. The Engineer shall be notified, prior to installation, of all locations where the minimum clearances are not to be maintained.

Utility Separation - Vertical Separation:

- Where water and gravity sanitary sewer main cross with less than 18 inches vertical clearance or the sanitary sewer main is above the water main, then the sanitary sewer shall be 20 feet, centered on the point of crossing, of either:
 - ductile iron pipe and hydrostatically pressure tested; or
 - concrete encased; or
 - PVC pipe upgraded to water main standards and pressure tested.
- Where water main and storm sewer pipe cross with less than 18 inches vertical clearance, or the storm main is above the water main, then the water main shall be 20 feet of ductile iron pipe centered on the point of crossing.

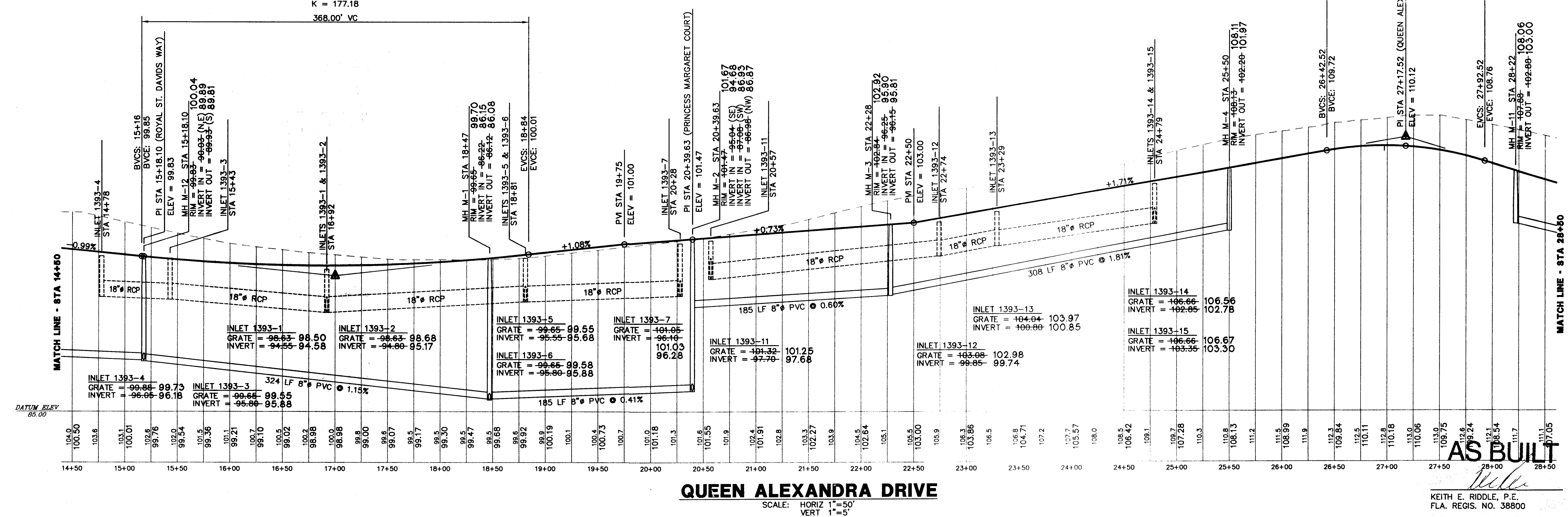
Utility Separation - Horizontal Separation:

- When a water main parallels a gravity sewer main, a separation (measured edge to edge) of at least ten feet shall be maintained. Where this separation is not met, one of the following must occur:
 - The water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer; or
 - If both sanitary sewer and potable water main are proposed and the above (A) is not met, the sanitary sewer pipe shall be upgraded to the equivalent pipe material as the water main and pressure tested.
 - If the sanitary sewer is existing and the potable water main is proposed, the water main shall, at a minimum, be upgraded to ductile iron pipe, constructed in separate trenches, laid at a higher elevation than the sanitary sewer, and utilize stoppered joints.
- Where water main parallels storm sewer pipe with less than 10 feet horizontal clearance, the water main shall be 18" (300/350) ductile iron in these locations.
- Where water main and unretrofit access raise pipe cross with less than 18 inches vertical clearance or 3 feet horizontal clearance, the unretrofit access raise main shall be upgraded and hydrostatically tested in the same manner as gravity sanitary sewer main (see A. above).
- Separation requirements between potable water mains and any type of raise mains other than unretrofit access raise is 10 feet horizontal and 18 inches vertical clearance.



HIGH POINT ELEV = 110.18
HIGH POINT STA = 26+97.17
PM STA = 27+17.52
PM ELEV = 111.00
A.D. = -4.70
K = 31.94

LOW POINT ELEV = 98.97
LOW POINT STA = 16+92
PM STA = 17+00
PM ELEV = 98.02
A.D. = 2.08
K = 177.18
368.00' VC



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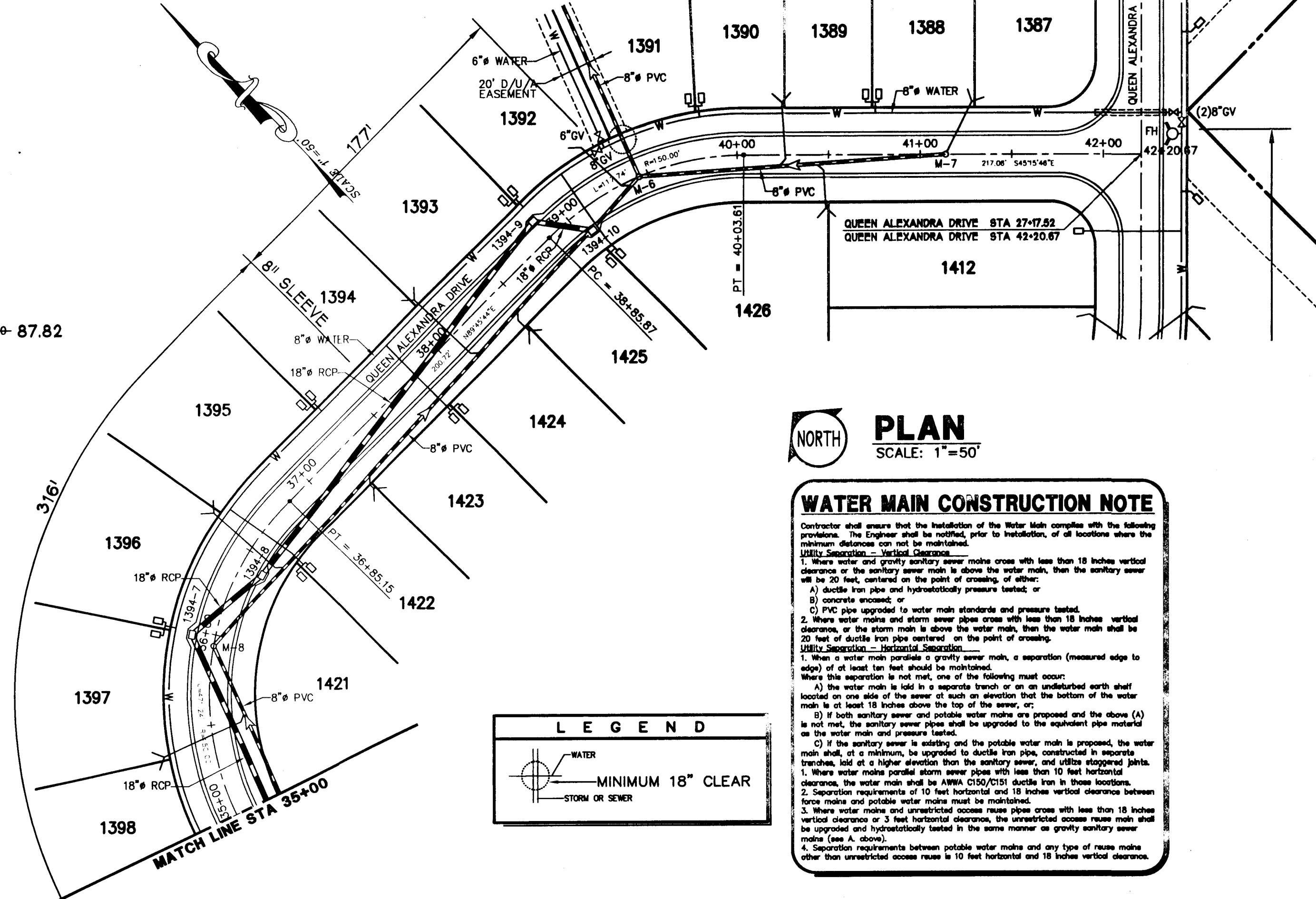
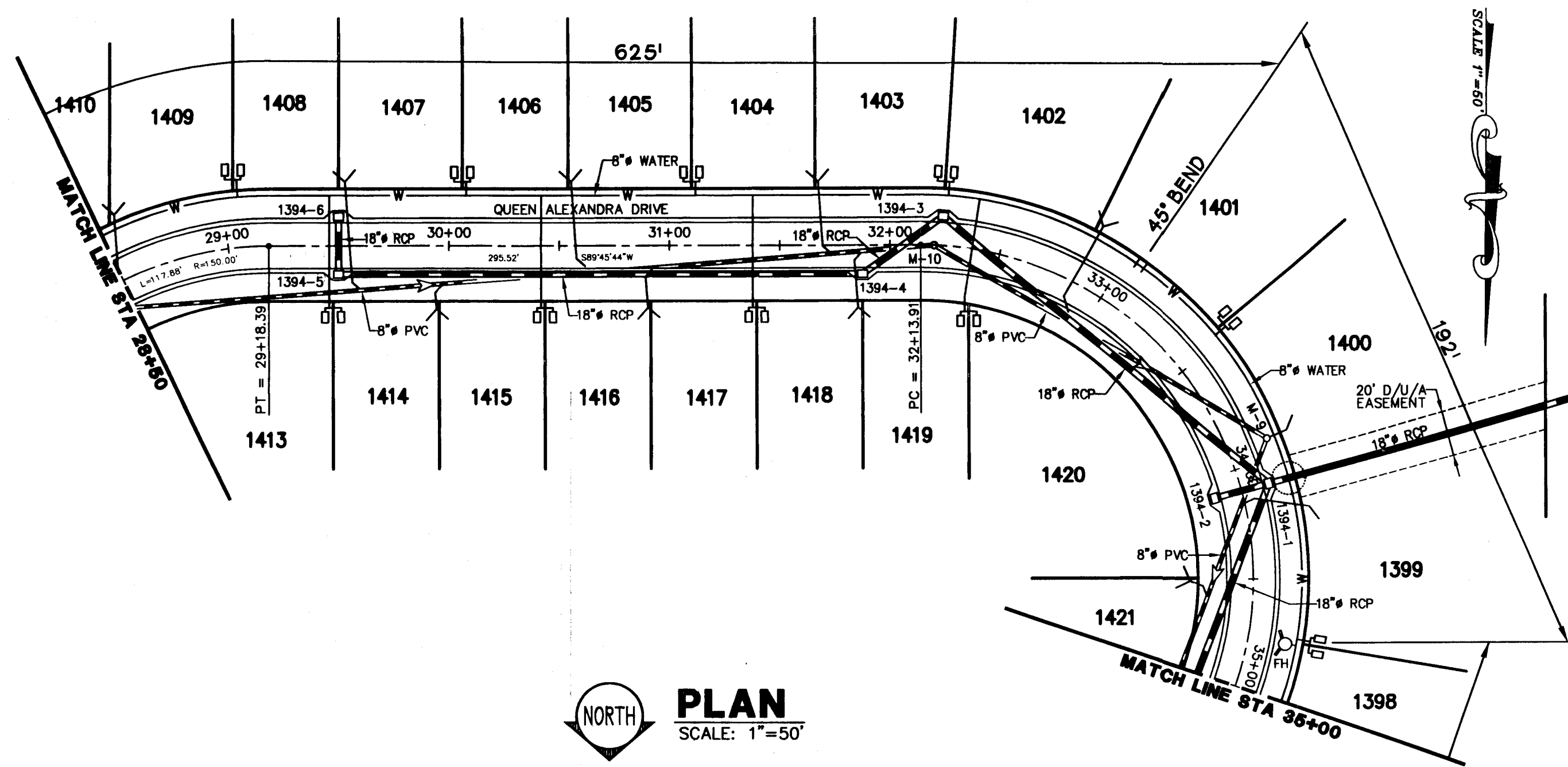
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PLAN & PROFILE - QUEEN ALEXANDRA DRIVE
ROYAL HIGHLANDS - PHASE 2B
LAKE COUNTY
FLORIDA

REV 05
REV 04
REV 03
REV 02
REV 01

FINAL AS-BUILTS PER CONTRACTOR 2/19/04
SEWER AND PARTIAL WATER AS-BUILT PER CONTRACTOR 10/03
REVISED PER LAKE COUNTY & SR/MMD 7/10/02

DATE: 3/22/04



PLAN
SCALE: 1"=50'

WATER MAIN CONSTRUCTION NOTE

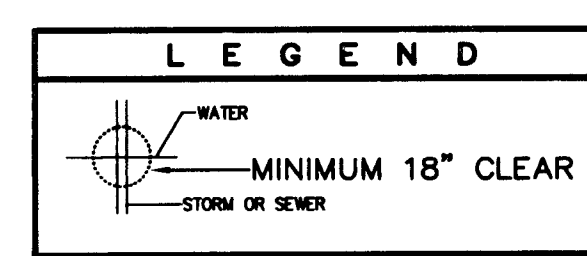
Contractor shall ensure that the installation of the water main complies with the following provisions. The Engineer shall be notified, prior to installation, of all locations where the minimum clearance cannot be maintained.

Utility Separation - Vertical Separation

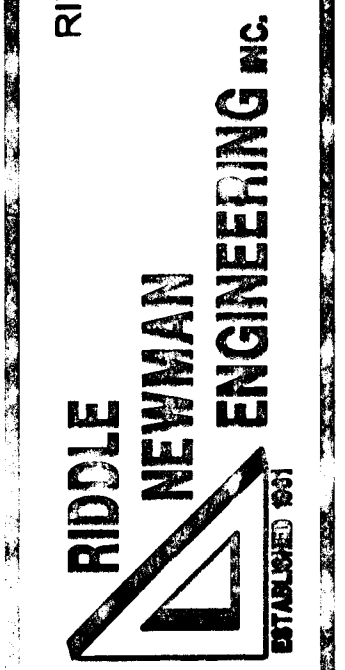
- Where water and gravity sanitary sewer mains cross with less than 18 inches vertical clearance or the sanitary sewer main is above the water main, then the sanitary sewer will be 20 feet, centered on the point of crossing, of either:
 - ductile iron pipe and hydraulically pressure tested; or
 - concrete encased; or
 - PVC pipe supported to water main standards and pressure tested.
- Where water mains and storm sewer pipes cross with less than 18 inches vertical clearance, or the storm main is above the water main, then the water main shall be 20 feet of ductile iron pipe centered on the point of crossing.

Utility Separation - Horizontal Separation

- When a water main parallels a gravity sewer main, a separation (measured edge to edge) of at least ten feet shall be maintained.
 - Where the separation is not met, one of the following must occur:
 - The water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer; or
 - If both sanitary sewer and potable water mains are proposed and the above (A) is not met, the sanitary sewer pipe shall be upgraded to the equivalent pipe material as the water main and pressure tested.
 - If the sanitary sewer is existing and the potable water main is proposed, the water main shall, at a minimum, be upgraded to ductile iron pipe, constructed in separate trenches, laid at a higher elevation than the sanitary sewer, and utilize staggered joints.
- Where water mains parallel storm sewer pipes with less than 10 feet horizontal clearance, the water main shall be AWWA C150/C151 ductile iron in three locations.
- Where water mains and unventilated access manhole pipes cross with less than 18 inches vertical clearance or 3 feet horizontal clearance, the unventilated access manhole shall be upgraded and hydraulically tested in the same manner as gravity sanitary sewer mains (see A. above).
- Separation requirements of 10 feet horizontal and 18 inches vertical clearance between force mains and potable water mains must be maintained.
- Separation requirements between potable water mains and any type of manhole other than unventilated access manhole is 10 feet horizontal and 18 inches vertical clearance.

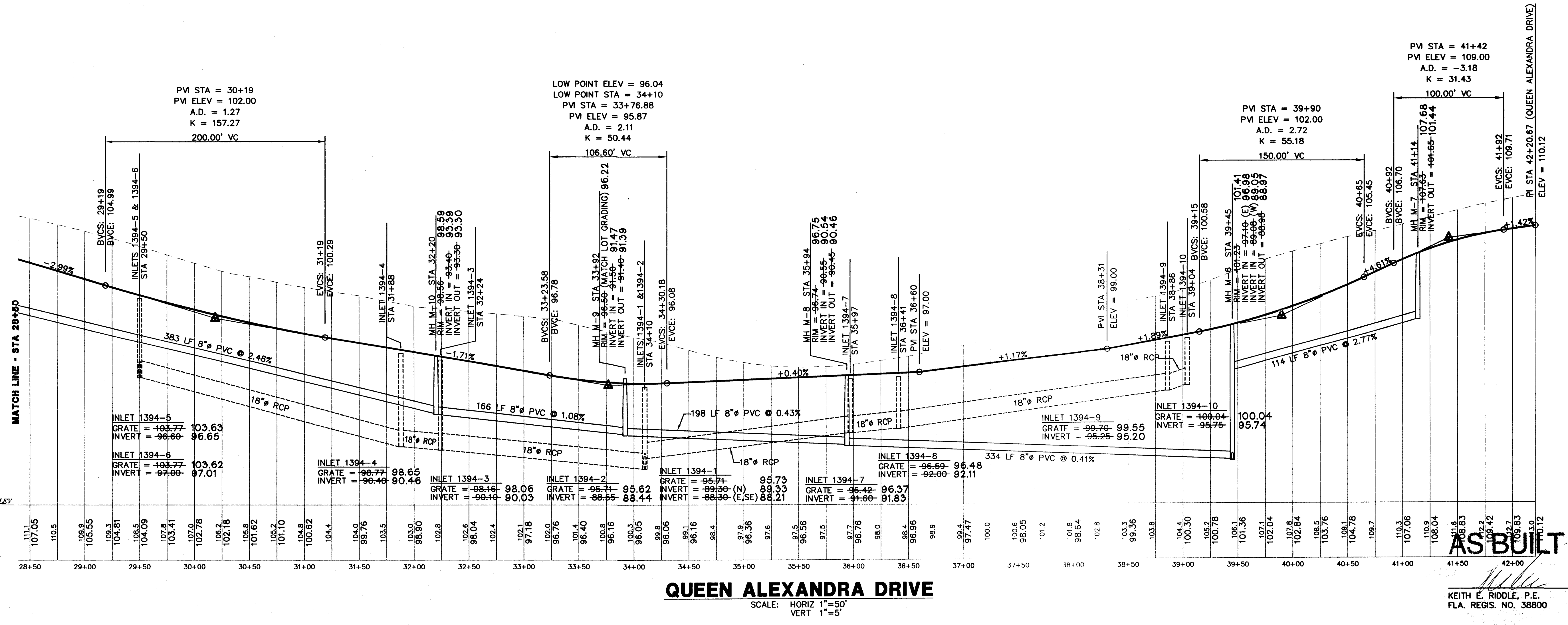


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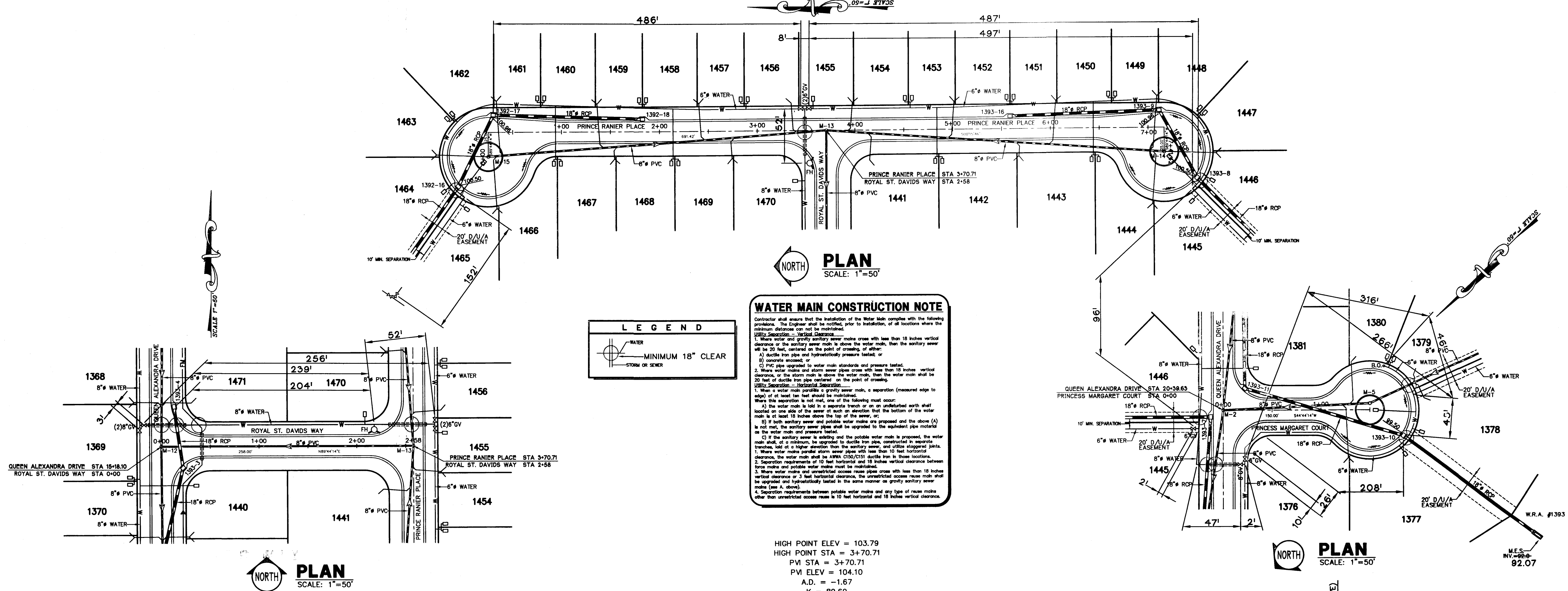


DATE	5/3/02	REVISION	NO. 33092
DRAWN	R.S.H.	REV #5	
CHECKED	K.E.R.	REV #4	
SCALE	1"=50'	REV #3	FINAL AS-BUILTS PER CONTRACTOR 2/19/04
PROJECT NO.	93092	REV #2	SEWER AND PARTIAL WATER AS-BUILT PER CONTRACTOR 12/03
		REV #1	REVISED PER LAKE COUNTY & SARASOTA 7/10/02

ROYAL HIGHLANDS - PHASE 2B
LAKE COUNTY
FLORIDA



03/16/2004 10:14:19 AM



WATER MAIN CONSTRUCTION NOTE

Contractor shall ensure that the installation of the Water Main complies with the following provisions. The Engineer shall be notified, prior to installation, of all locations where the minimum distances are not to be maintained.

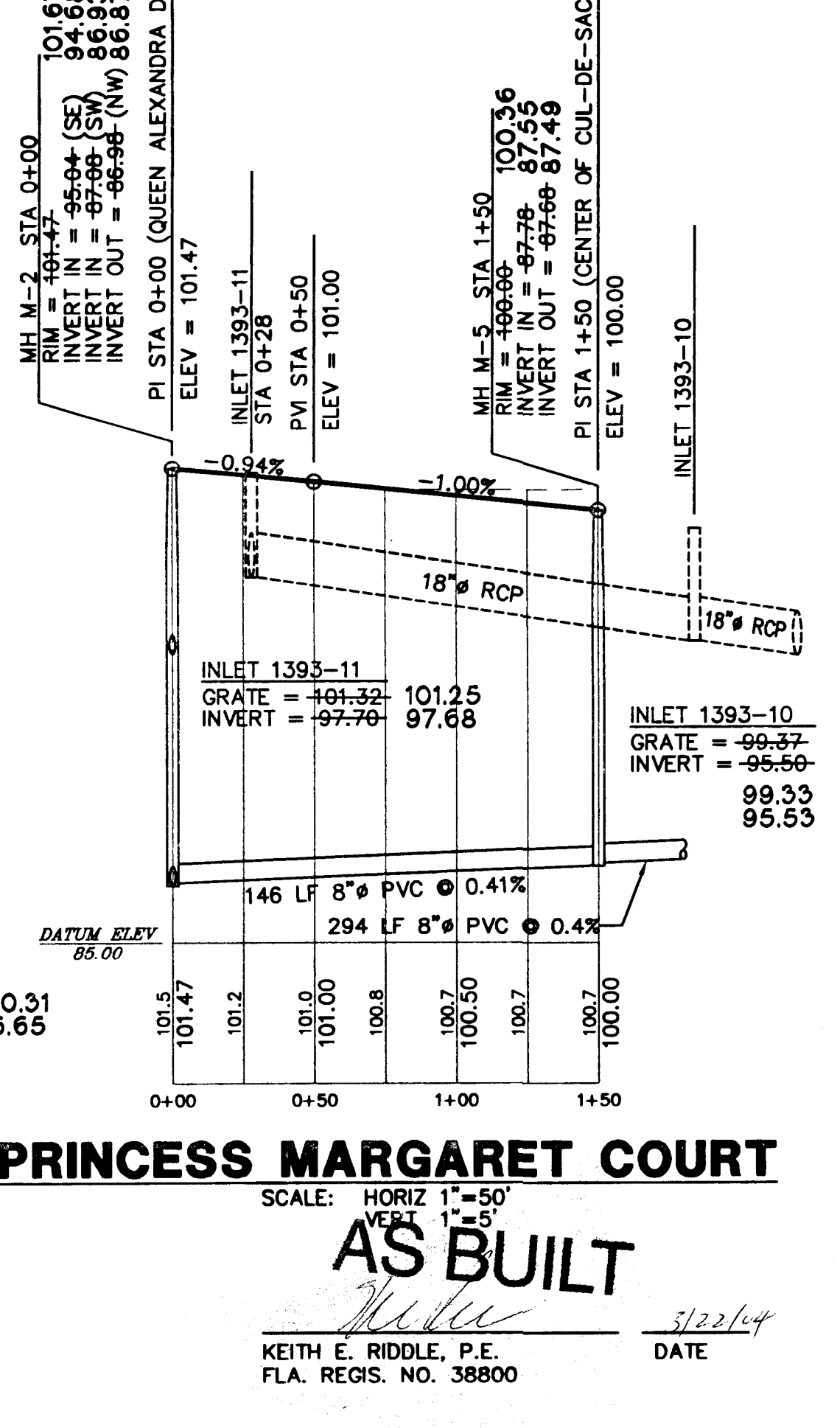
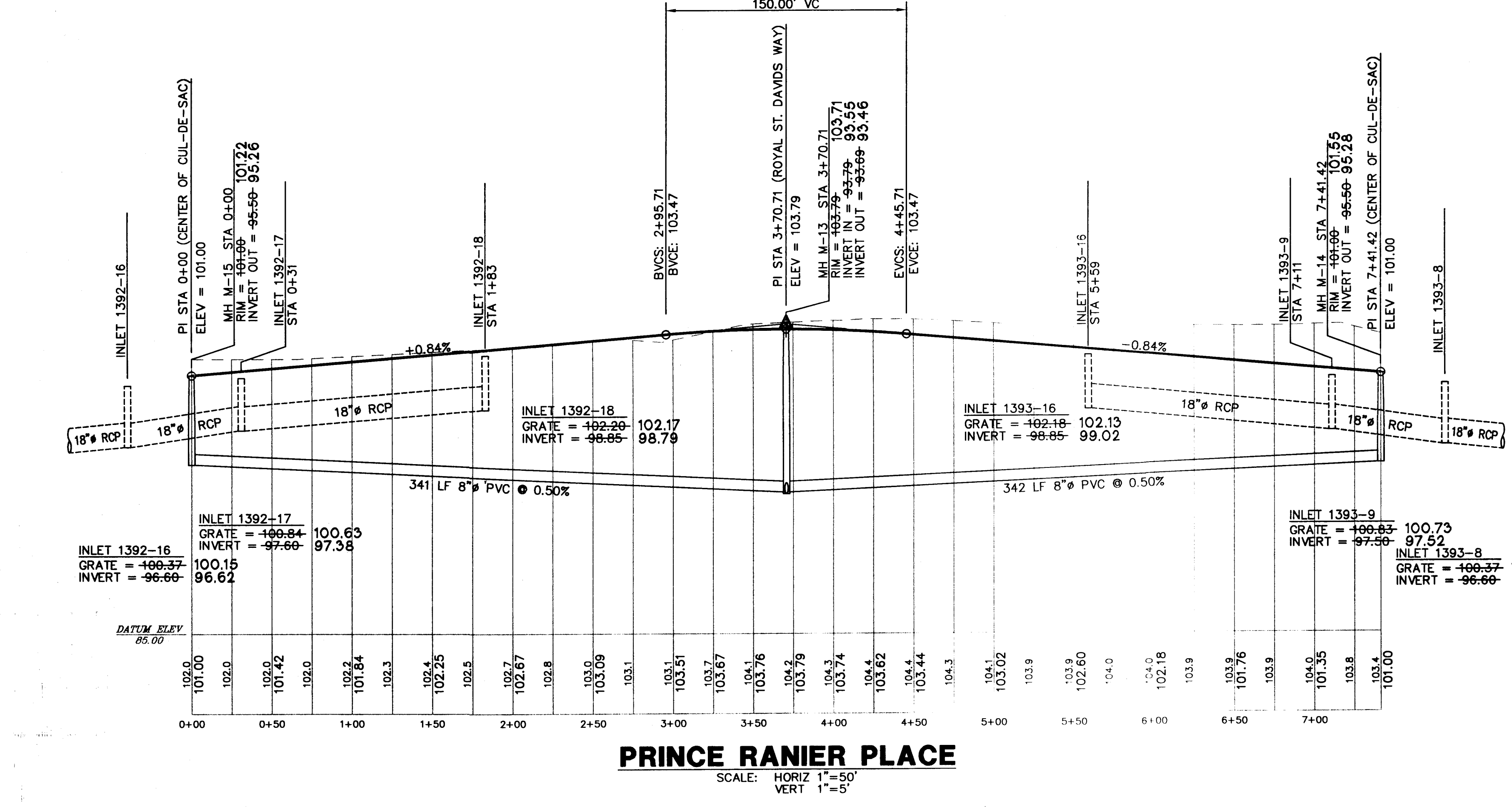
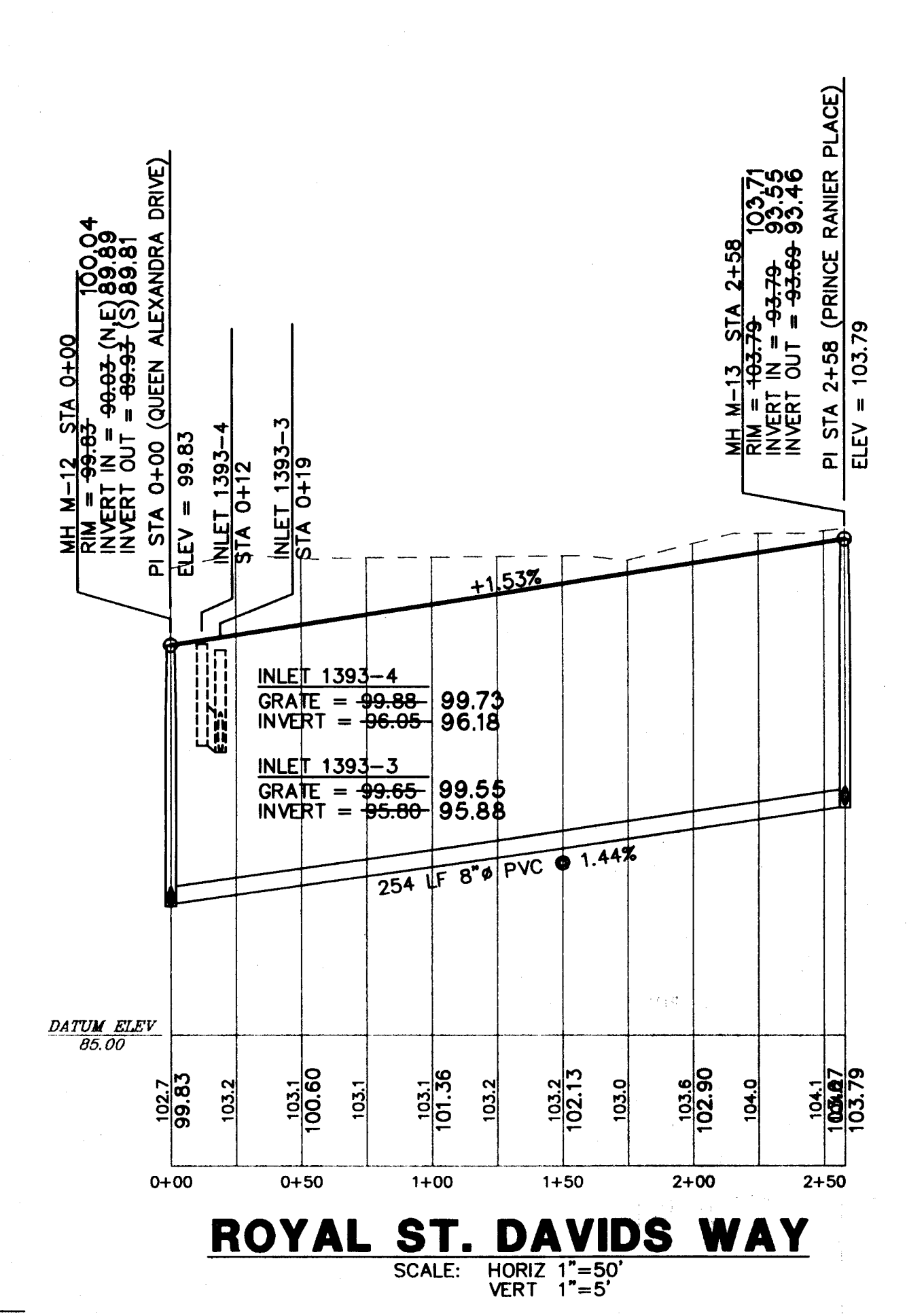
Utility Separation - Vertical Clearance

- Where water and gravity sanitary sewer mains cross with less than 18 inches vertical clearance, or the sanitary sewer main is above the water main, then the sanitary sewer shall be 20 feet, centered on the point of crossing, of either:
 - ductile iron pipe and hydrotest to pressure tested; or
 - concrete encased; or
 - PVC pipe upgraded to water main standards and pressure tested.
- Where water mains and storm sewer pipes cross with less than 18 inches vertical clearance, or the storm main is above the water main, then the water main shall be 20 feet of ductile iron pipe centered on the point of crossing.

Utility Separation - Horizontal Separation

- When a water main parallels a gravity sewer main, a separation (measured edge to edge) of at least ten feet shall be maintained.
 - the water main is laid in a separate trench or on an undisturbed earth shaft located on one side of the sewer of such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer; or
 - if both sanitary sewer and potable water mains are proposed and the above (A) is not met, the sanitary sewer pipes shall be upgraded to the equivalent pipe material as the water main and pressure tested.
- If the sanitary sewer is existing and the potable water main is proposed, the water main shall, of a minimum, be upgraded to ductile iron pipe, constructed in separate trenches, laid at a higher elevation than the sanitary sewer, and utilize stoppered joints.
- Where water mains parallel storm sewer pipes with less than 10 feet horizontal clearance, the water main shall be 400(C)/200(S) ductile iron in those locations.
- Separation requirements of 10 feet horizontal and 18 inches vertical clearance between cross mains and potable water mains must be maintained.
- Where water mains and unrestricted access raise pipes cross with less than 18 inches vertical clearance or 3 feet horizontal clearance, the unrestricted access raise shall be upgraded and hydrotest to the same manner as gravity sanitary sewer mains (see A. above).
- Separation requirements between potable water mains and any type of raise mains other than unrestricted access raise is 10 feet horizontal and 18 inches vertical clearance.

HIGH POINT ELEV = 103.79
 HIGH POINT STA = 3+70.71
 PVI STA = 3+70.71
 PVI ELEV = 104.10
 A.D. = -1.67
 K = 89.69



ROYAL HIGHLANDS - PHASE 2B
 FLORIDA
 LAKE COUNTY

PLAN & PROFILE - ROYAL ST. DAVIDS WAY & PRINCE RANIER PLACE & PRINCESS MARGARET COURT

DATE: 3/22/04
 KEITH E. RIDDLE, P.E.
 FLA. REGIS. NO. 38800

PROJECT NO 93092
 DATE 5/3/02
 SCALE 1"=50'
 CHECKED K.E.R.
 DRAWN R.S.H.

REV 01
 REV 02
 REV 03
 REV 04
 REV 05

FINAL AS-BUILTS PER CONTRACTOR 2/19/04
 SEWER AND PARTIAL WATER AS-BUILT PER CONTRACTOR 12/16/03
 REVISED PER LAKE COUNTY & SARWAD 7/10/02
 REVISED WATER PER CITY 8/2/02

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