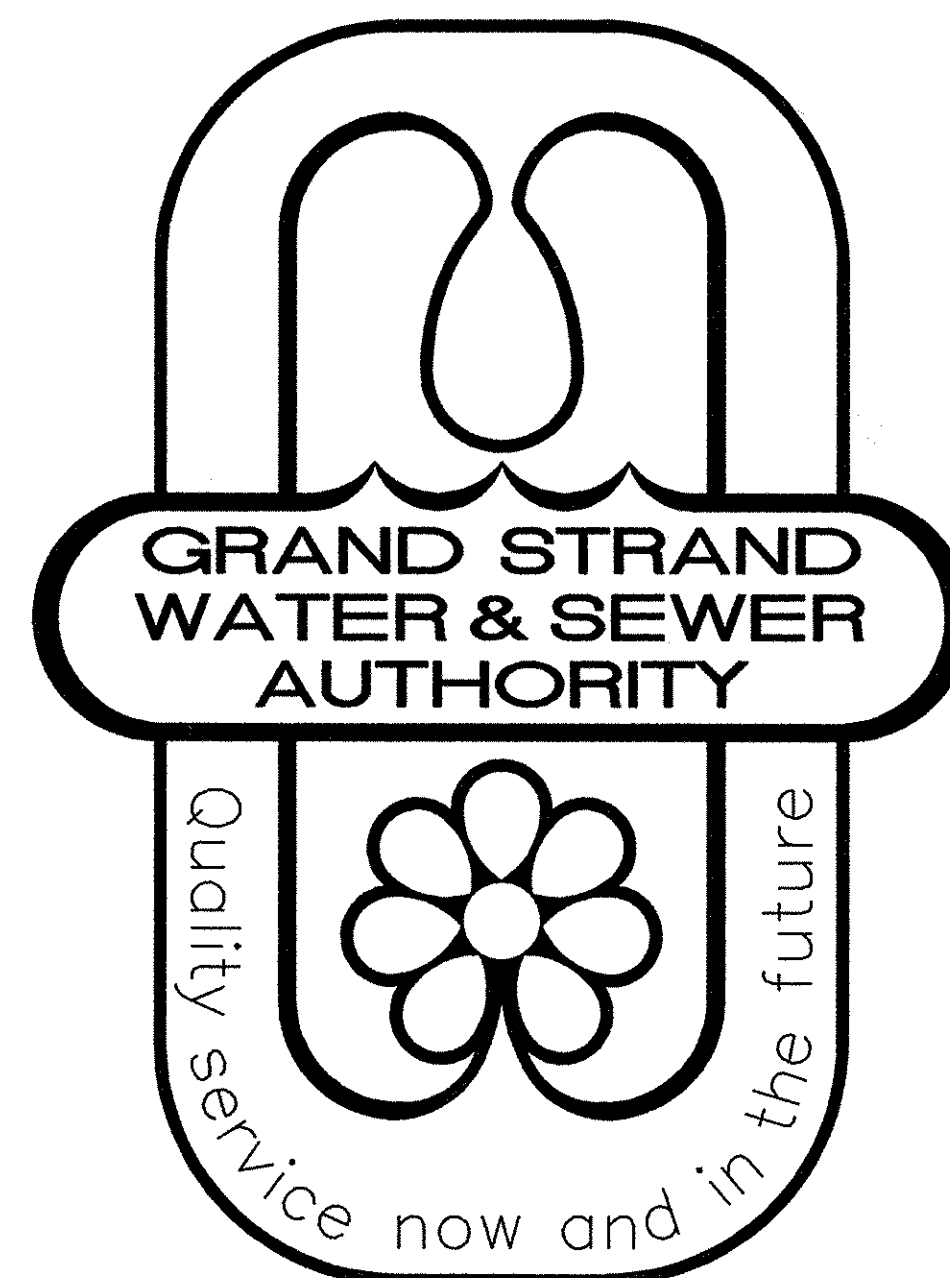
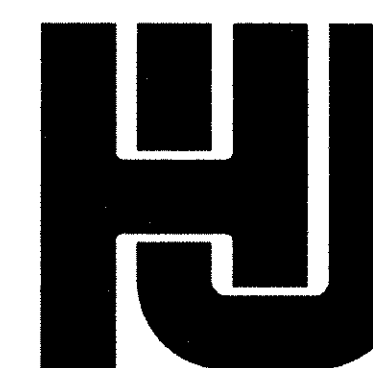


TURF FARM FORCE MAIN DIVERSION

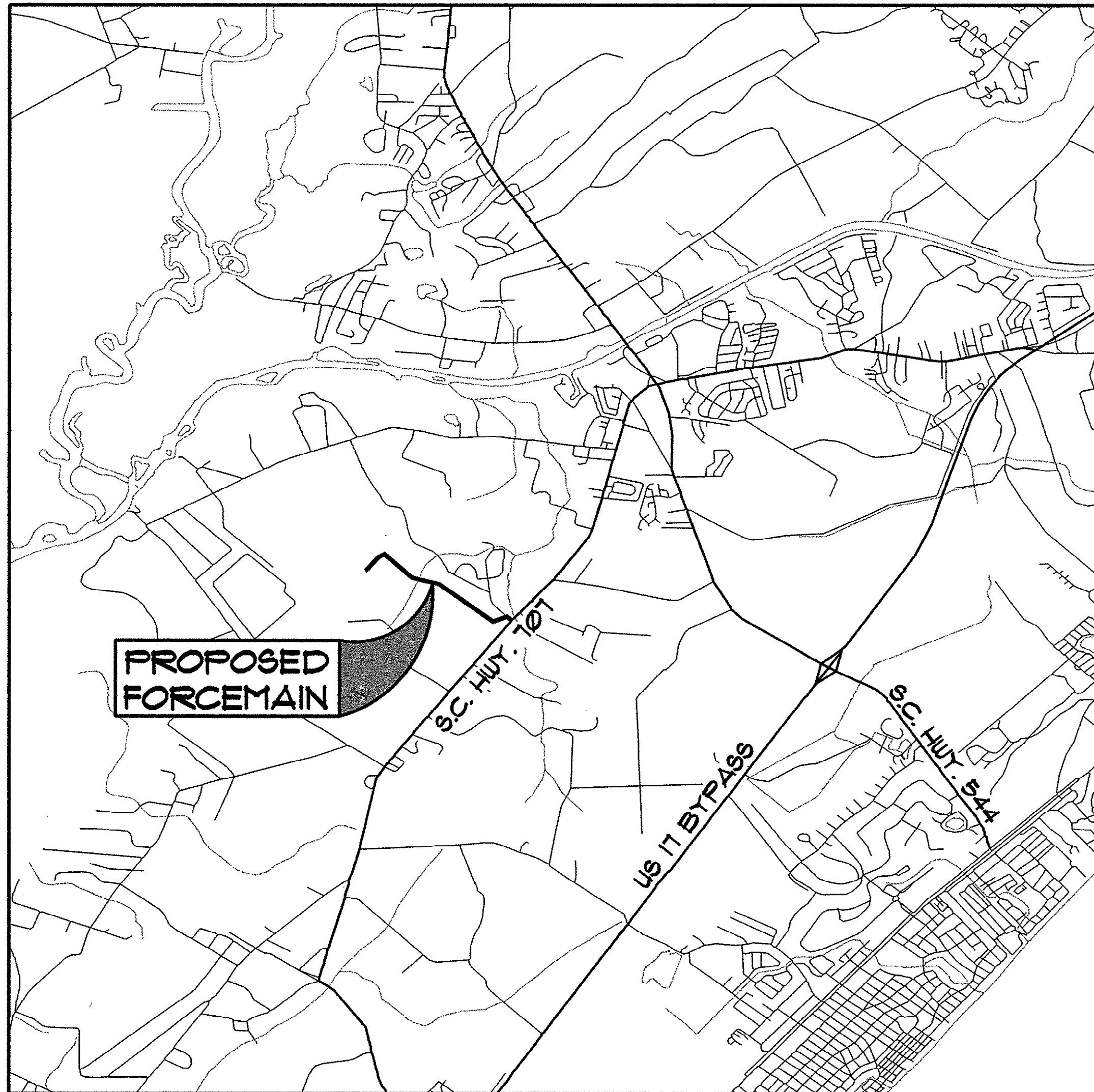
PROJECT NO. 805-02
AS BUILTS



GRAND STRAND WATER AND SEWER AUTHORITY



HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577



VICINITY MAP

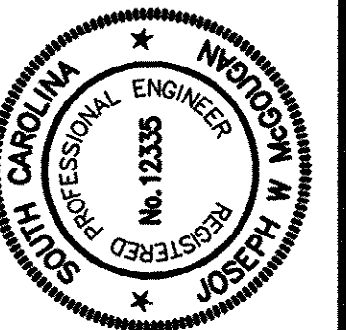
INDEX OF SHEETS

SHEET NO.	SHEET TITLE
1	COVER SHEET
2	VICINITY MAP AND INDEX
3	TURF FARM FORCE MAIN LAYOUT MAP
4 THRU 10	TURF FARM PLAN AND PROFILE SHEETS
11A AND 11B	PUMP STATION PLAN AND DETAILS
12	EFFLUENT FORCE MAIN LAYOUT MAP
13	EFFLUENT PLAN AND PROFILE SHEET
14	MISCELLANEOUS DETAILS
15	MISCELLANEOUS DETAILS
16	EROSION DETAILS

NOTES:

1. WORK WITHIN PUBLIC RIGHT OF WAYS OR PRIVATE EASEMENTS SHALL BE ACCOMPLISHED BY THE CONTRACTOR ACCORDING TO THE REQUIREMENTS OR CONDITIONS OF THE ENCROACHMENT PERMIT OR OTHER LEGAL DOCUMENTS AS THOUGH THE DOCUMENTS WERE ISSUED IN THE CONTRACTORS NAME. THE CONTRACTOR SHALL MAINTAIN COPIES OF THESE DOCUMENTS ON THE SITE AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF PUBLIC RIGHT-OF-WAYS DURING CONSTRUCTION OF THE PROJECT AND UNTIL THE CONTRACTOR OBTAINS AND DELIVERS TO THE OWNER A WRITTEN SIGN-OFF FROM Horry COUNTY AND/OR THE S.C.D.O.T. THAT THE PUBLIC AGENCY HAS ACCEPTED THE RIGHT-OF-WAY BACK FOR MAINTENANCE. FINAL PAYMENT AND RELEASE OF RETAINAGE WILL NOT BE MADE TO THE CONTRACTOR UNTIL WRITTEN SIGN-OFF HAS BEEN OBTAINED FROM THE APPROPRIATE PUBLIC AGENCY AND PROVIDED TO THE OWNER.
2. PROVISIONS SHALL BE MADE TO PREVENT EROSION AND SILTRATION CAUSED BY CONSTRUCTION. TEMPORARY GRASSING, HAY BALES, SILT FENCES OR OTHER METHODS CALLED FOR ON THE PLANS OR AS MAY BE REQUIRED, SHALL BE USED.
3. THE CONTRACTOR WILL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND EXISTENCE OF ALL UNDERGROUND UTILITIES. LOCATION OF UTILITIES ON THE PLANS, WHETHER FULLY AND CORRECTLY LOCATED OR OMITTED, WILL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OR LIABILITY FOR DAMAGE TO UTILITIES. THE CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING LOCAL UTILITIES FOR ASSISTANCE IN LOCATING UTILITIES. THE CONTRACTOR MUST FULLY COMPLY WITH THE SOUTH CAROLINA UNDERGROUND UTILITIES DAMAGE PREVENTION ACT, GENERAL STATUTES 58-35, SECTIONS 20 THROUGH 120.
4. WHEN THE CONTRACTOR IS UNABLE TO COMPLETE HIS WORK AS SHOWN ON THE PLANS BECAUSE OF AN EXISTING UTILITY, THE CONTRACTOR SHALL STAKE THE LOCATION OF THE UTILITY PRIOR TO PROCEEDING AND CONTACT THE ENGINEER.
5. THE CONTRACTOR SHALL NOTIFY ALL PUBLIC AGENCIES, THE OWNER, THE ENGINEER AND ALL OTHER CONCERNED PARTIES WHEN CONSTRUCTION IS TO COMMENCE SO THAT INSPECTIONS AND OTHER SITE VISITS MAY BE SCHEDULED.
6. DATA REQUIRED FOR PREPARATION OF ASBUILT DRAWINGS SHALL BE OBTAINED BY THE CONTRACTOR AT THE TIME OF INSTALLATION. THIS DATA SHALL BE ACCUMULATED BY THE CONTRACTOR AND COORDINATED WITH THE PROJECT INSPECTOR ON A DAILY BASIS DURING THE CONSTRUCTION PERIOD AND BE SUBMITTED TO THE PROJECT INSPECTOR IN A NEAT AND LEGIBLE MANNER AFTER COMPLETION OF THE PROJECT.
7. ALL WORK SHALL BE IN ACCORDANCE WITH THE APPLICABLE FEDERAL, STATE AND LOCAL ORDINANCES, REGULATIONS, SPECIFICATIONS, AND PERMITS.
8. SPECIAL NOTE: PRIOR TO ANY EXCAVATION THE CONTRACTOR IS REQUIRED TO CONTACT Horry TELEPHONE COOPERATIVE FOR CABLE LOCATIONS AT 365-2151. THIS PROJECT INVOLVES SEVERAL CABLE LINES LOCATED ADJACENT TO THE ROADWAY THAT THE CONTRACTOR WILL BE REQUIRED TO LOCATE AND EXPOSE PRIOR TO THE INSTALLATION OF ANY MATERIALS.
9. REPLACE IN KIND ALL AREAS WHERE THE PROPERTY OWNER HAS DEVELOPED SPECIAL GRASS, TURF, OR LANDSCAPING. ALL DISTURBED AREAS ARE TO BE RAKED AND SEEDED.
10. PIPE SEPARATION: THE FOLLOWING MINIMUM PIPE SEPARATION WILL BE MAINTAINED: 12 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SANITARY SEWER AND STORM SEWERS. 18 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SEWER (INCLUDING FORCE MAINS) AND WATER MAINS. AND 10 FEET HORIZONTAL SEPARATION BETWEEN SANITARY SEWER (INCLUDING FORCE MAINS) AND WATER MAINS. IF THESE SEPARATIONS CANNOT BE MAINTAINED, DUCTILE IRON PIPE WILL BE USED 10 FEET EITHER SIDE OF CROSSING AND ALONG ENTIRE LENGTH OF LINE LESS THAN 10 HORIZONTAL FEET FROM WATER MAINS. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER BEFORE PAYMENT WILL BE MADE AT DUCTILE IRON PRICES.
11. ALL REQUESTS FOR CHANGES AND/OR MODIFICATIONS SHALL BE SUBMITTED THROUGH THE INSPECTOR TO THE ENGINEER AND OWNER FOR APPROVAL PRIOR TO PROCEEDING WITH ANY MODIFICATIONS OR ADDITIONS.
12. MECHANICAL RESTRAINTS SHALL BE USED ON FITTINGS AND JOINTS PER GSW#6A STANDARDS.
13. ALL DISTURBED DRIVES SHALL BE RECONSTRUCTED ACCORDING TO SCDOT SPECIFICATIONS.

REVISIONS		DATE	BY
SYMBOL	DESCRIPTION	06/03	98/2
AS BUILT			



HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

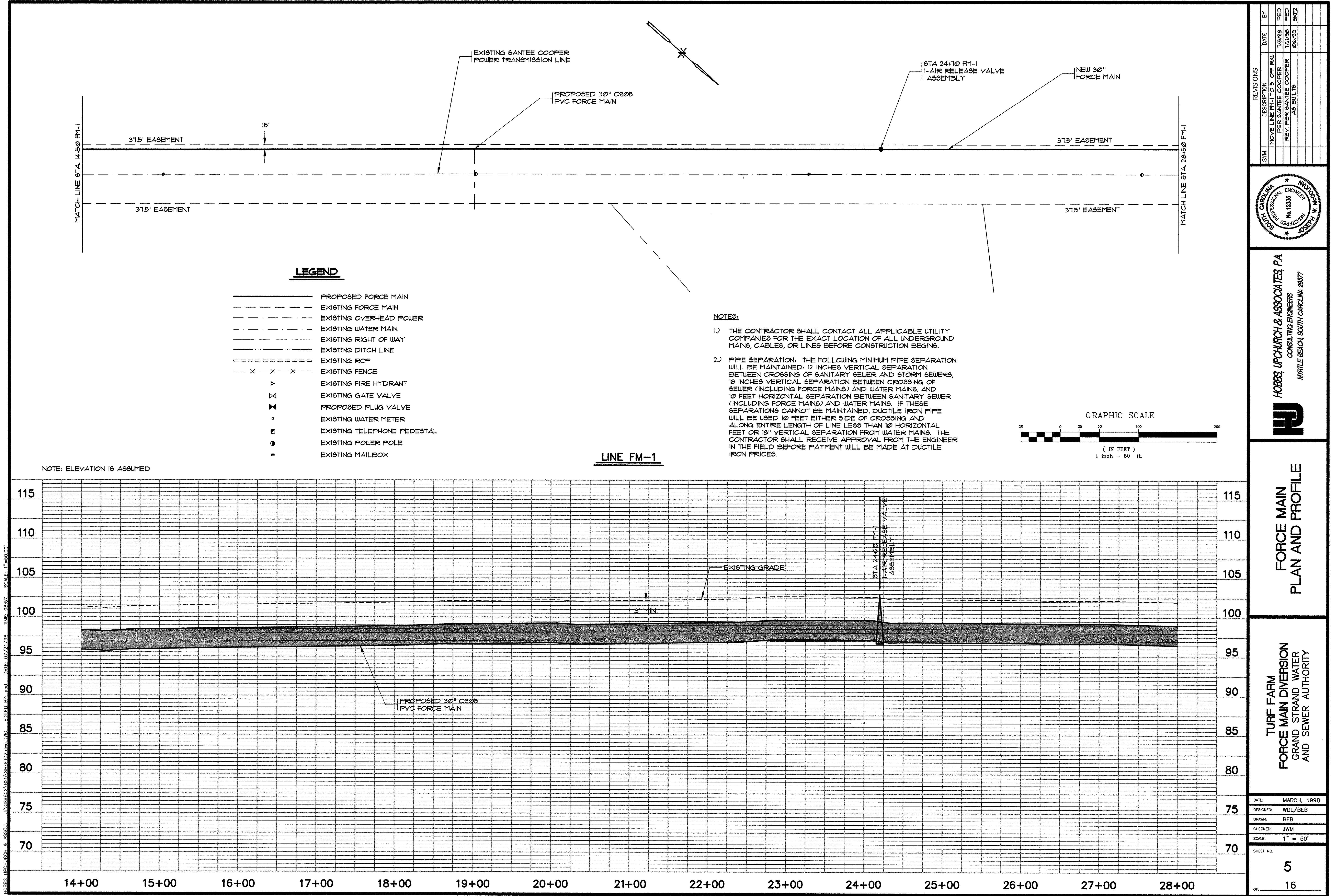


VICINITY MAP
INDEX

TURF FARM
FORCE MAIN DIVERSION
GRAND STRAND WATER
AND SEWER AUTHORITY

DATE:	1996
DESIGNED:	HUA
DRAWN:	BEB
CHECKED:	JWM
SCALE:	AS SHOWN

SHEET NO.	2
OF	16



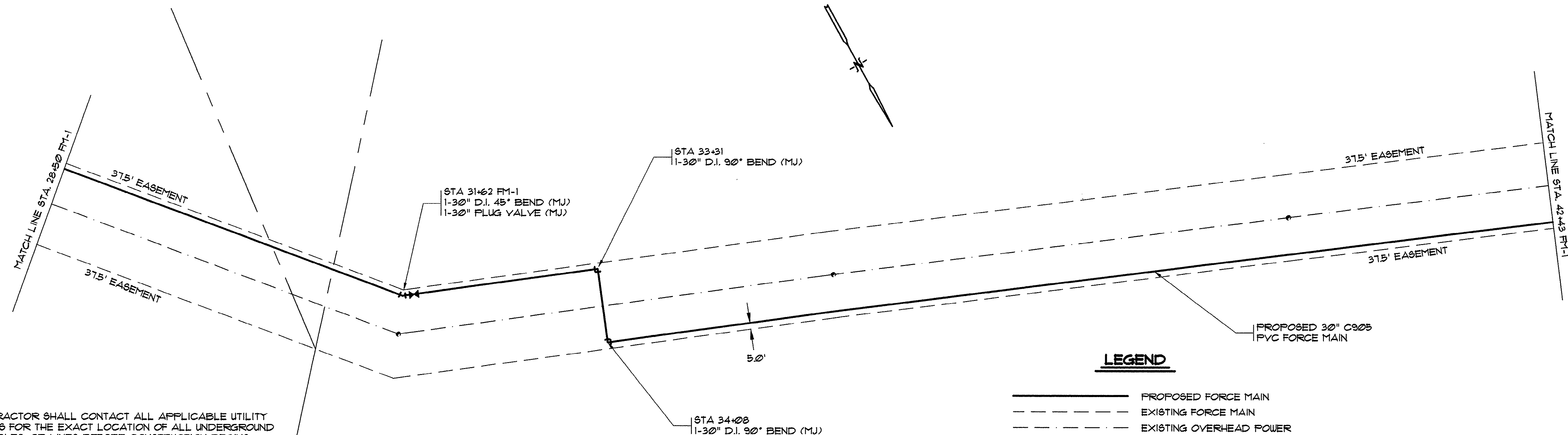
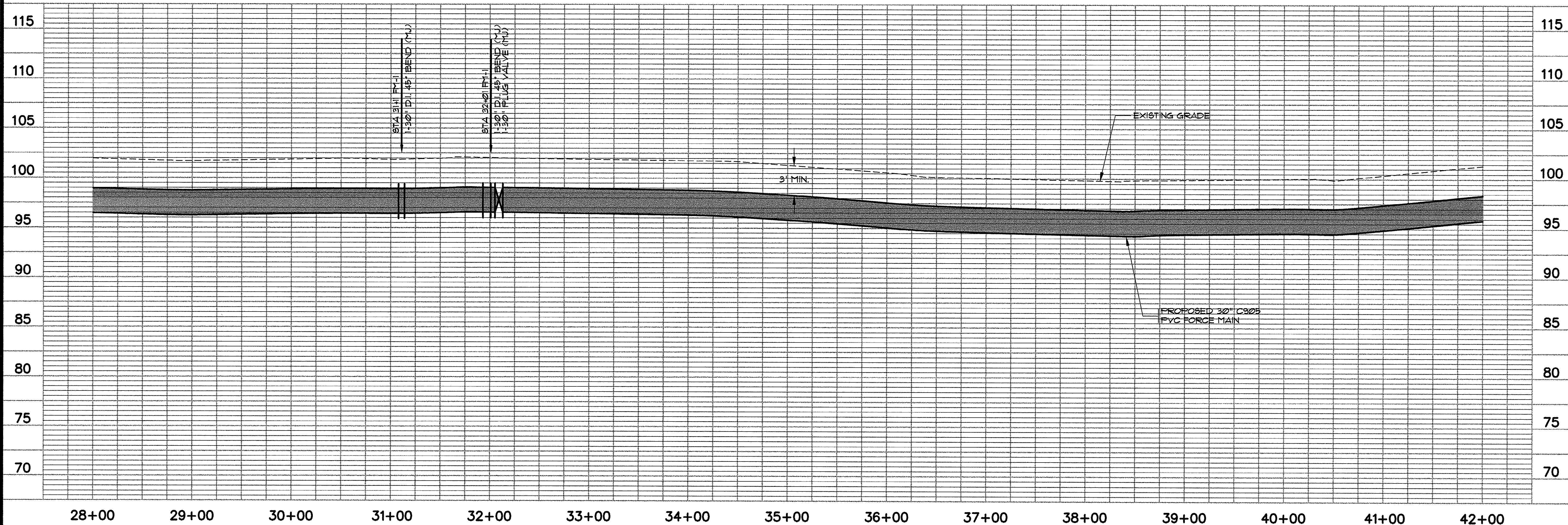
HOBBS, UPCHURCH & ASSOC. \ASSOC\N\03\SHEET03.dwg DATE: 07/21/98 TIME: 09:43 SCALE: 1"=50.00'

NOTES:

- 1) THE CONTRACTOR SHALL CONTACT ALL APPLICABLE UTILITY COMPANIES FOR THE EXACT LOCATION OF ALL UNDERGROUND MAINS, CABLES, OR LINES BEFORE CONSTRUCTION BEGINS.
- 2) PIPE SEPARATION: THE FOLLOWING MINIMUM PIPE SEPARATION WILL BE MAINTAINED: 12 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SANITARY SEWER AND STORM SEWERS, 18 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SEWER (INCLUDING FORCE MAINS) AND WATER MAINS, AND 10 FEET HORIZONTAL SEPARATION BETWEEN SANITARY SEWER (INCLUDING FORCE MAINS) AND WATER MAINS. IF THESE SEPARATIONS CANNOT BE MAINTAINED, DUCTILE IRON PIPE WILL BE USED 10 FEET EITHER SIDE OF CROSSING AND ALONG ENTIRE LENGTH OF LINE LESS THAN 10 HORIZONTAL FEET OR 18" VERTICAL SEPARATION FROM WATER MAINS. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER IN THE FIELD BEFORE PAYMENT WILL BE MADE AT DUCTILE IRON PRICES.

NOTE: ELEVATION IS ASSUMED

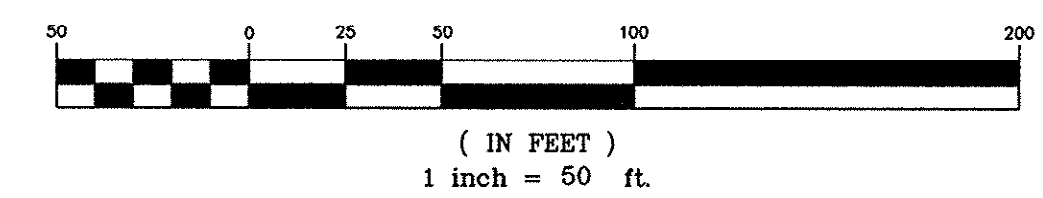
LINE FM-1



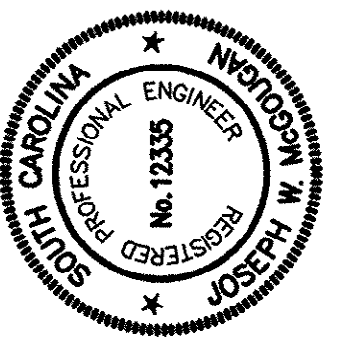
LEGEND

- PROPOSED FORCE MAIN
- EXISTING FORCE MAIN
- EXISTING OVERHEAD POWER
- EXISTING WATER MAIN
- EXISTING RIGHT OF WAY
- EXISTING DITCH LINE
- EXISTING RCP
- EXISTING FENCE
- EXISTING FIRE HYDRANT
- EXISTING GATE VALVE
- PROPOSED PLUG VALVE
- EXISTING WATER METER
- EXISTING TELEPHONE PEDESTAL
- EXISTING POWER POLE
- EXISTING MAILBOX

GRAPHIC SCALE



SYMBOL	DESCRIPTION	DATE	BY
	MOVE LINE FM-1 TO 5' OFF R/W	7/8/98	FED
	REV. PER Santee Cooper	7/21/98	FED
	AS BUILT'S	08/98	SKF



HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577



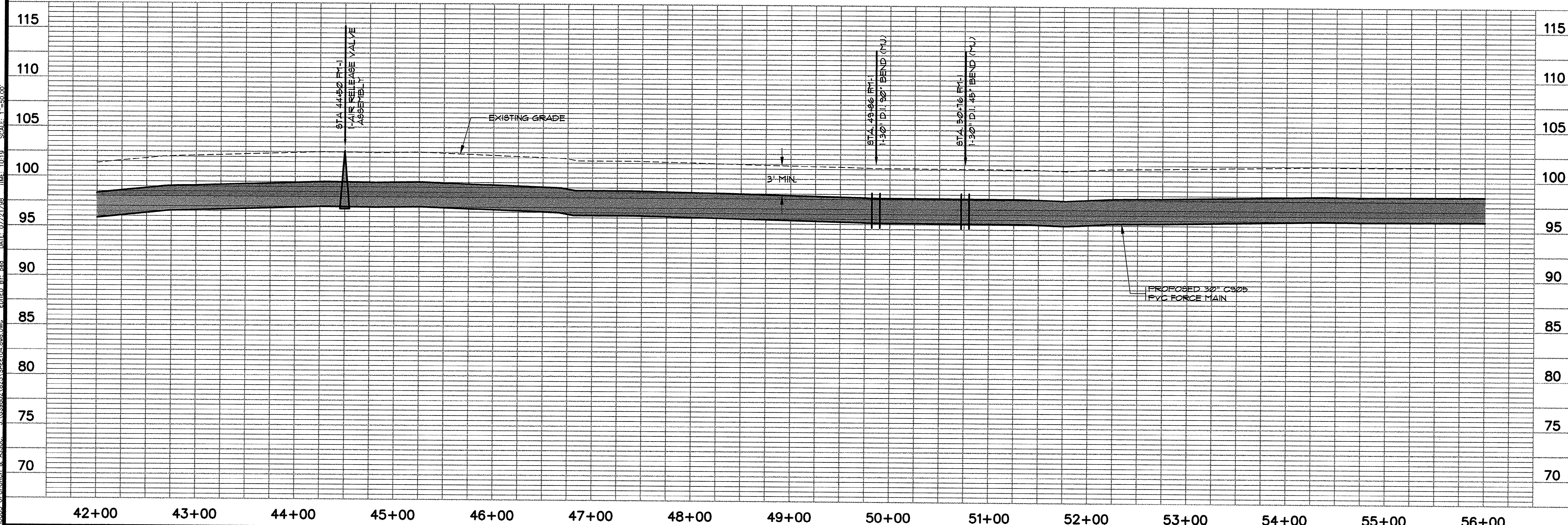
FORCE MAIN
PLAN AND PROFILE

TURF FARM
FORCE MAIN DIVERSION
GRAND STRAND WATER
AND SEWER AUTHORITY

DATE:	MARCH, 1998
DESIGNED:	WDL/BEB
DRAWN:	BEB
CHECKED:	JWM
SCALE:	1" = 50'
SHEET NO.	6
OF:	16

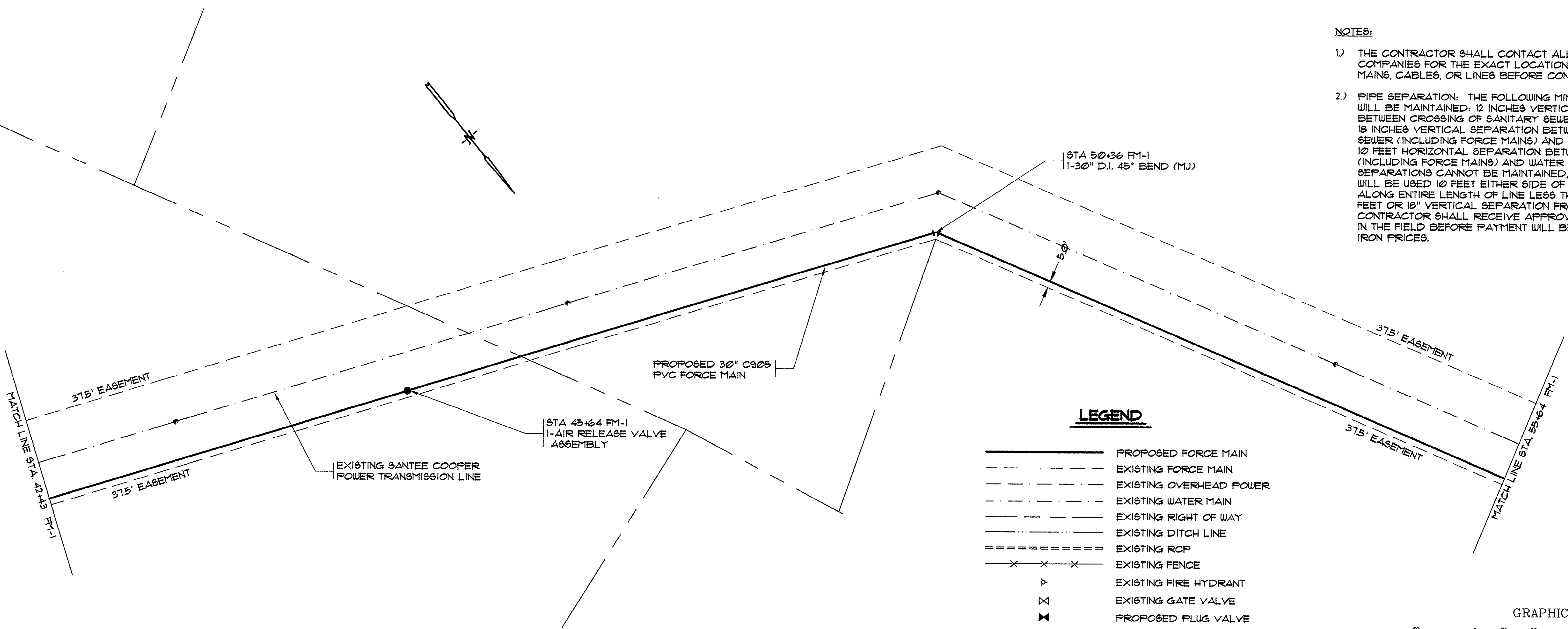
14-106-006/16-S

14-106-007/16-S
DATE: 07/21/98
TIME: 10:19
SCALE: 1"=50.00'
HOBBS, UPCHURCH & ASSOC.
DESIGNED BY: WDL
DRAWN BY: BEB
CHECKED BY: JWM
DATE: MARCH, 1998
SHEET NO. 7
OF 16

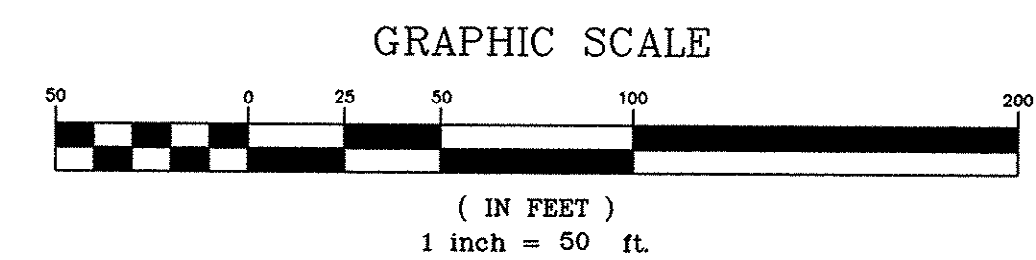


NOTE: ELEVATION IS ASSUMED

LINE FM-1



- LEGEND**
- PROPOSED FORCE MAIN
 - EXISTING FORCE MAIN
 - EXISTING OVERHEAD POWER
 - EXISTING WATER MAIN
 - EXISTING RIGHT OF WAY
 - EXISTING DITCH LINE
 - EXISTING RCP
 - EXISTING FENCE
 - EXISTING FIRE HYDRANT
 - EXISTING GATE VALVE
 - PROPOSED PLUG VALVE
 - EXISTING WATER METER
 - EXISTING TELEPHONE PEDESTAL
 - EXISTING POWER POLE
 - EXISTING MAILBOX



- NOTES:**
- THE CONTRACTOR SHALL CONTACT ALL APPLICABLE UTILITY COMPANIES FOR THE EXACT LOCATION OF ALL UNDERGROUND MAINS, CABLES, OR LINES BEFORE CONSTRUCTION BEGINS.
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SYMBOL	DESCRIPTION	DATE	BY
NOVE LINE PFI TO 3' OFF R/W	PER Santee Cooper	1/9/98	PED
REV. PER Santee Cooper	AS BUILT	1/21/98	PED
		2/6/98	947

REVISIONS

Professional Engineer
JOSEPH M. HOBBS
No. 12335
SOUTH CAROLINA
REGISTERED

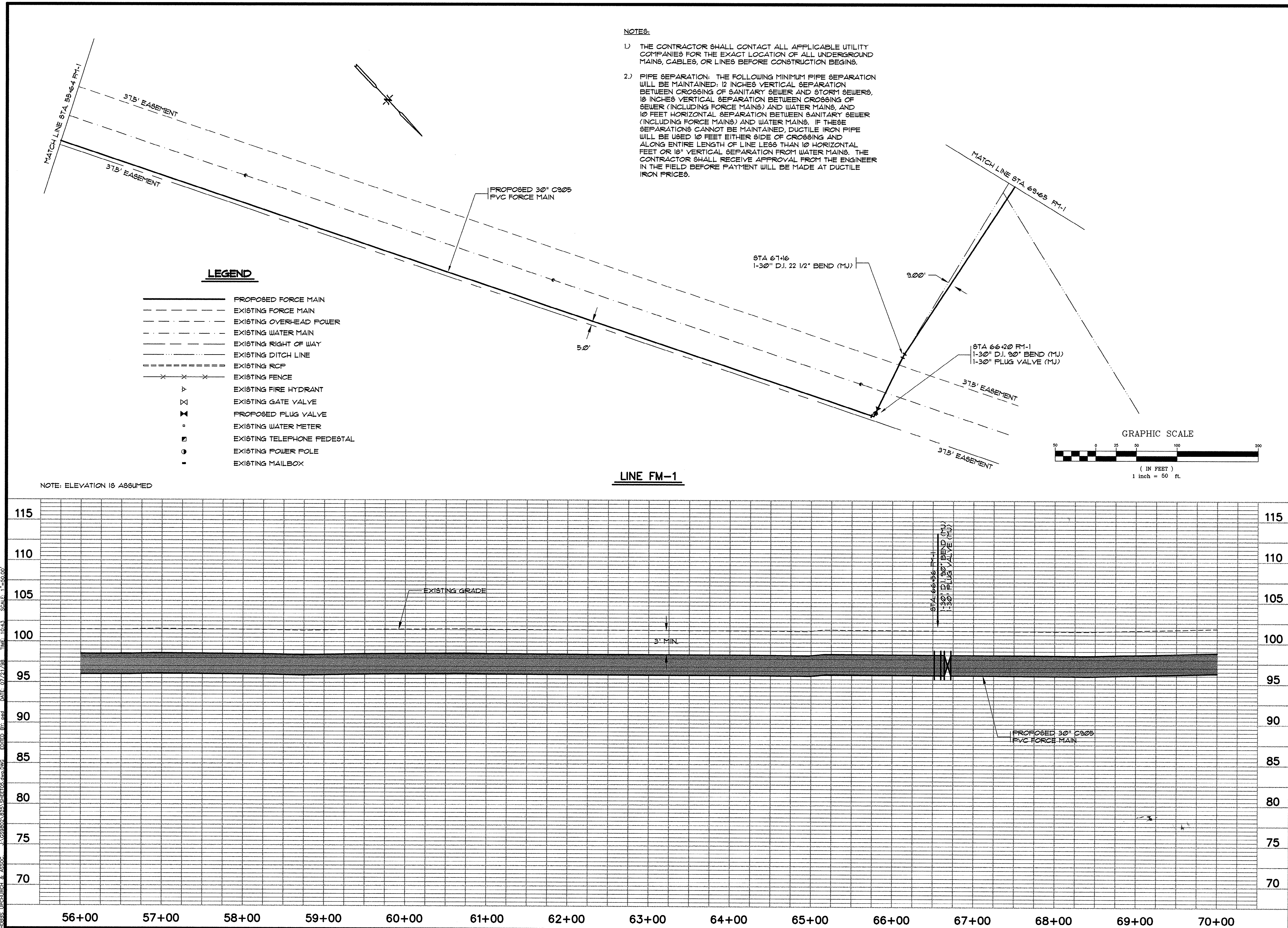
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

FORCE MAIN DIVERSION
GRAND STRAND WATER
AND SEWER AUTHORITY

FORCE MAIN
PLAN AND PROFILE

DATE: MARCH, 1998
DESIGNED: WDL/BEB
DRAWN: BEB
CHECKED: JWM
SCALE: 1" = 50'
SHEET NO. 7
OF 16

HOBBBS, UPCHURCH & ASSOC., INC. 07/21/98 DATE: 07/21/98 TIME: 10:43 SCALE: 1"=50.00'



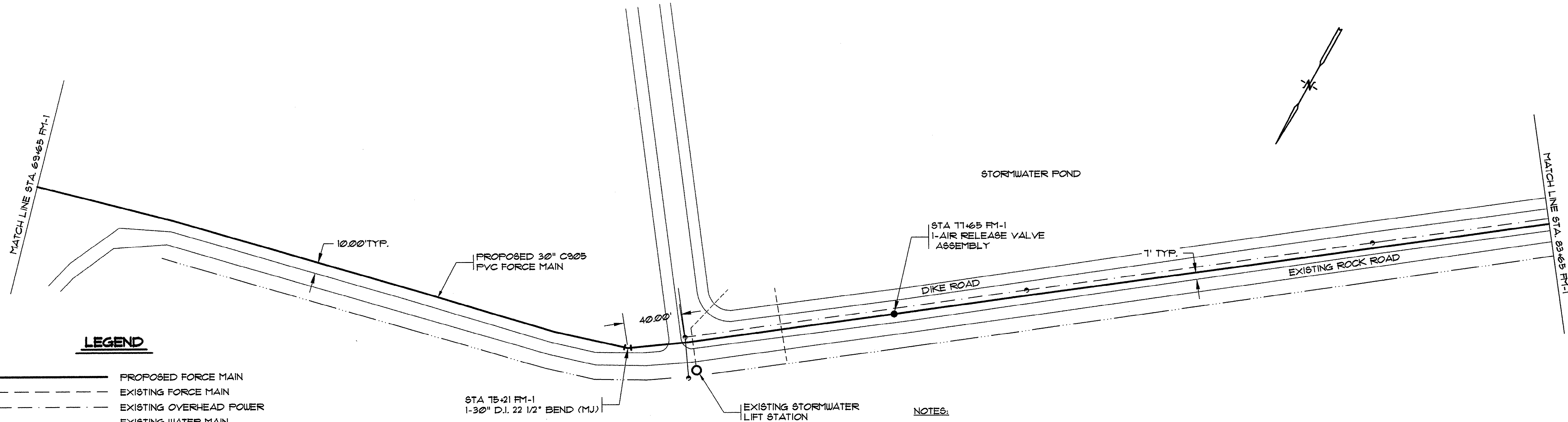
SYN.	DESCRIPTION	DATE	BY
1	MOVE LINE FM-1 TO 3' OFF R/W	1/8/98	FED
2	PER Santee Cooper	1/7/98	FED
3	REV. PER Santee Cooper	2/6/98	BAF2
4	AS BUILT		

HOBBBS, UPCHURCH & ASSOCIATES, P.A. CONSULTING ENGINEERS MYRTLE BEACH, SOUTH CAROLINA 29577	REGISTERED PROFESSIONAL ENGINEER No. 12335 SOUTH CAROLINA
---	---

DATE: MARCH, 1998
DESIGNED: WDL/BEB
DRAWN: BEB
CHECKED: JWM
SCALE: 1" = 50'
SHEET NO.

8
OF: 16

FORCE MAIN PLAN AND PROFILE
TURF FARM FORCE MAIN DIVERSION GRAND STRAND WATER AND SEWER AUTHORITY

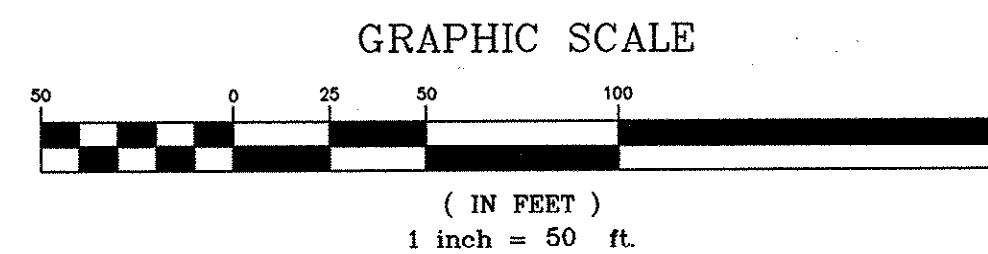


LEGEND

- PROPOSED FORCE MAIN
- - - EXISTING FORCE MAIN
- - - EXISTING OVERHEAD POWER
- - - EXISTING WATER MAIN
- - - EXISTING RIGHT OF WAY
- - - EXISTING DITCH LINE
- - - EXISTING RCP
- - - EXISTING FENCE
- △ EXISTING FIRE HYDRANT
- ⊗ EXISTING GATE VALVE
- ⊗ PROPOSED PLUG VALVE
- EXISTING WATER METER
- EXISTING TELEPHONE PEDESTAL
- EXISTING POWER POLE
- EXISTING MAILBOX

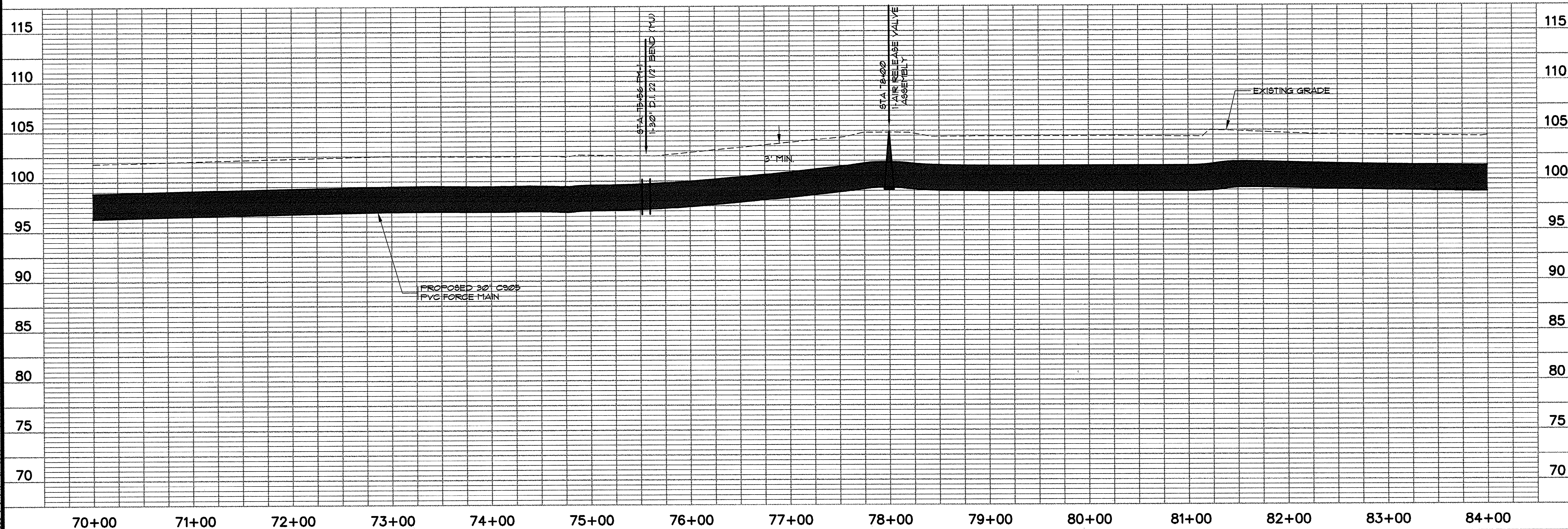
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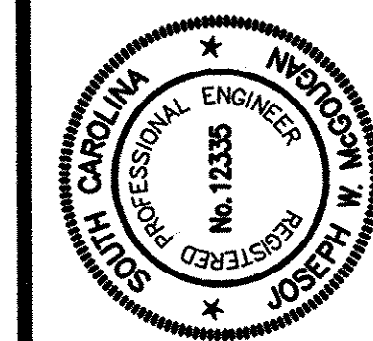


LINE FM-1

NOTE: ELEVATION IS ASSUMED



REVISIONS	DATE	BY
NOVE LINE FM-1 TO B' OFF R/W	1/8/98	FED
REV. PER Santee COOPER	1/1/98	FED
REV. PER Santee COOPER	2/6/98	8472
AS BUILT		



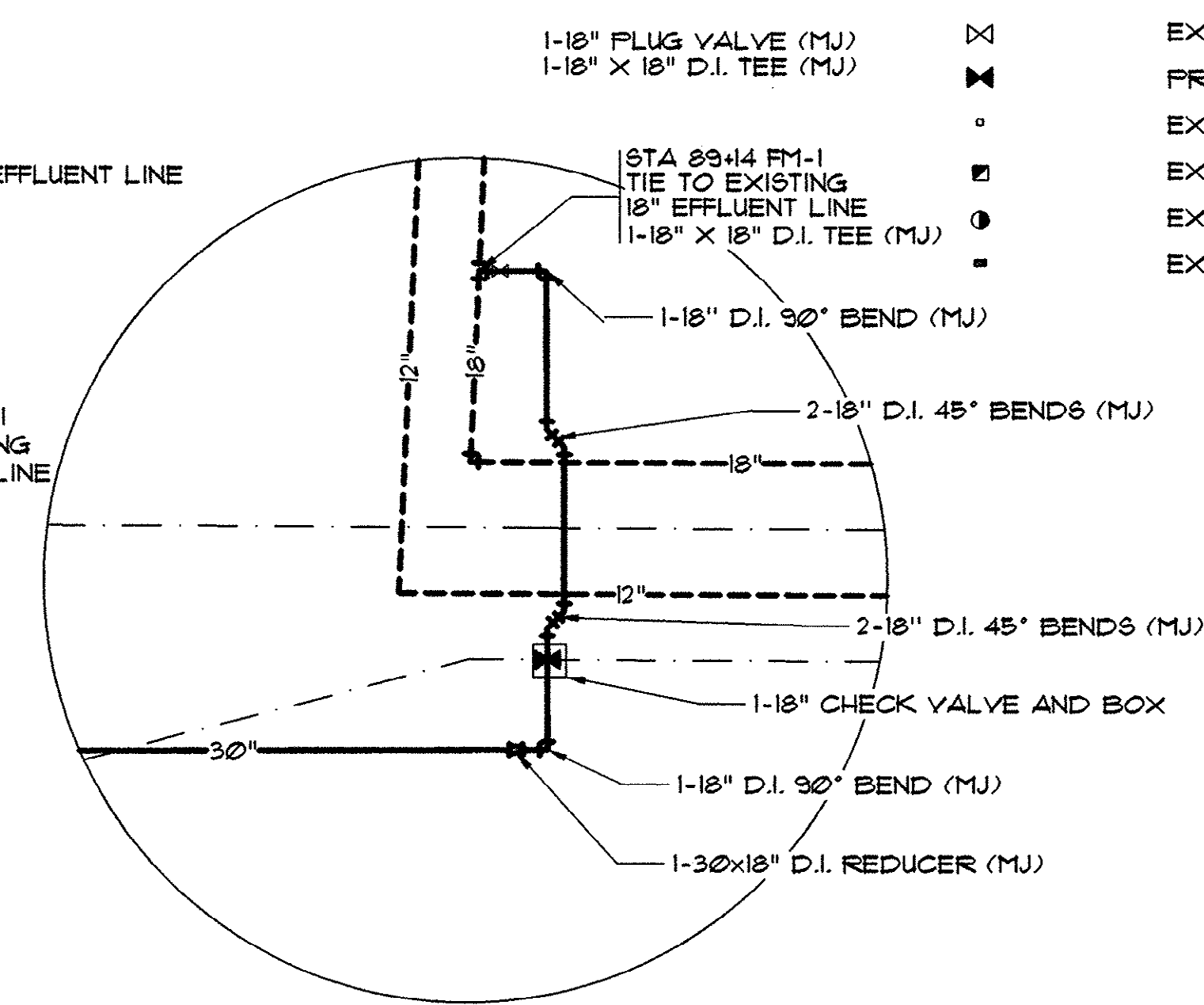
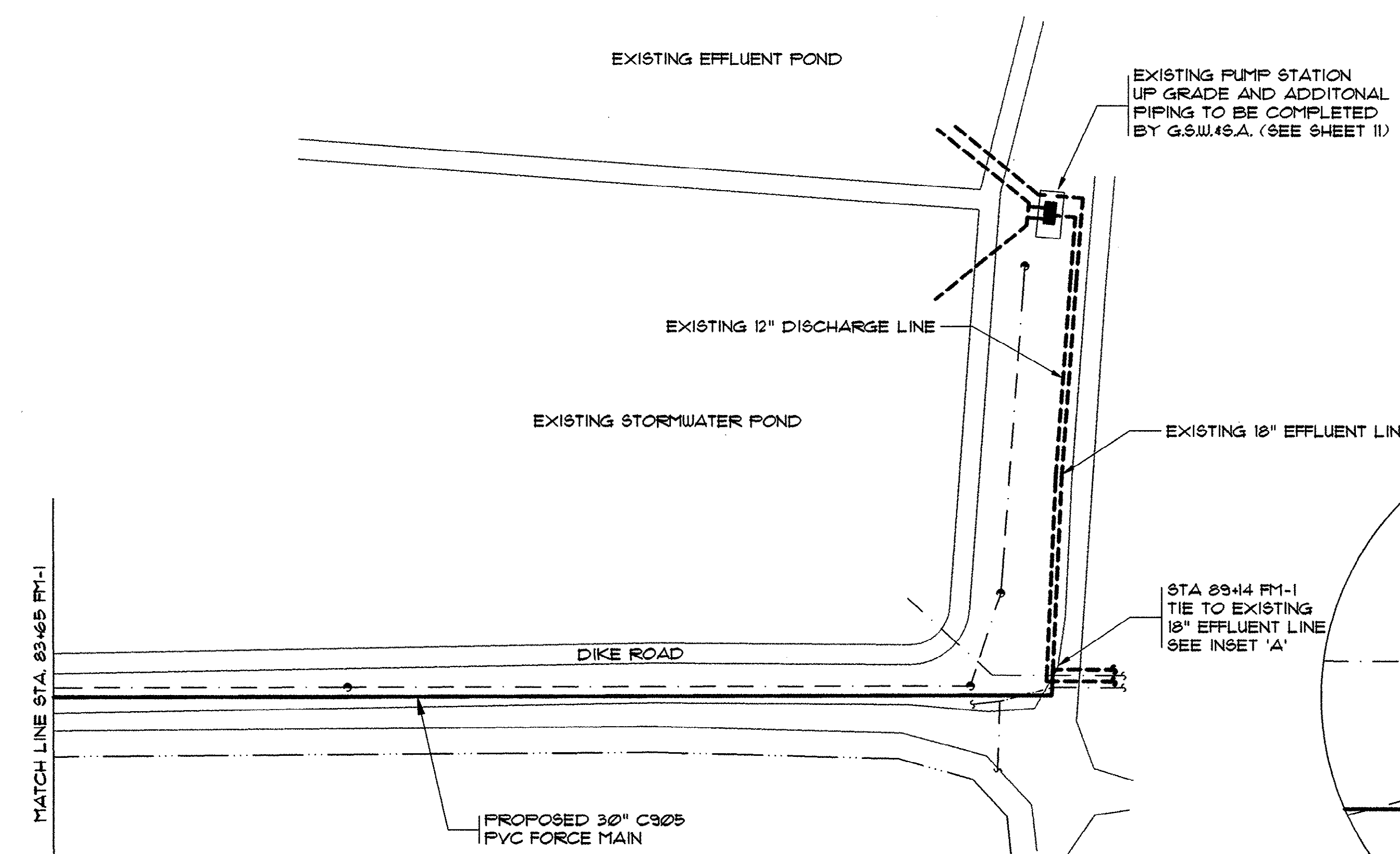
HOBBS, UPCHURCH & ASSOCIATES, PA
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577



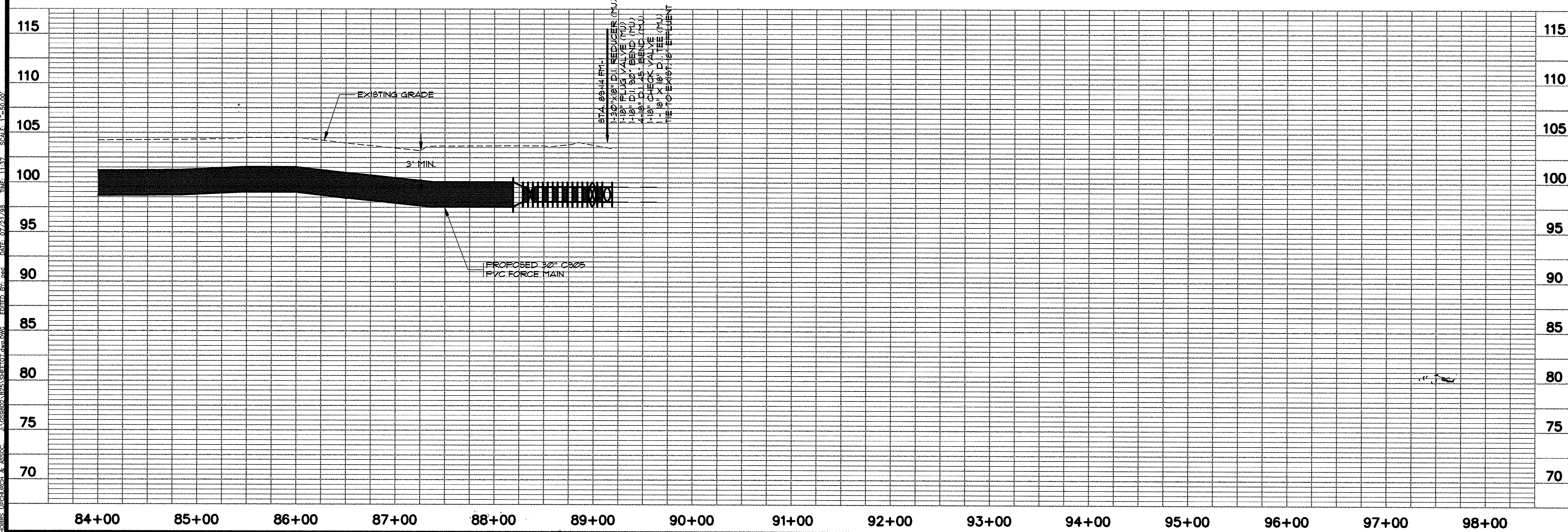
FORCE MAIN
PLAN AND PROFILE

TURF FARM
FORCE MAIN DIVERSION
GRAND STRAND WATER
AND SEWER AUTHORITY

DATE:	MARCH, 1998
DESIGNED:	WDL/BEB
DRAWN:	BEB
CHECKED:	JWM
SCALE:	1" = 50'
SHEET NO.	9
OF:	16



NOTE: ELEVATION IS ASSUMED

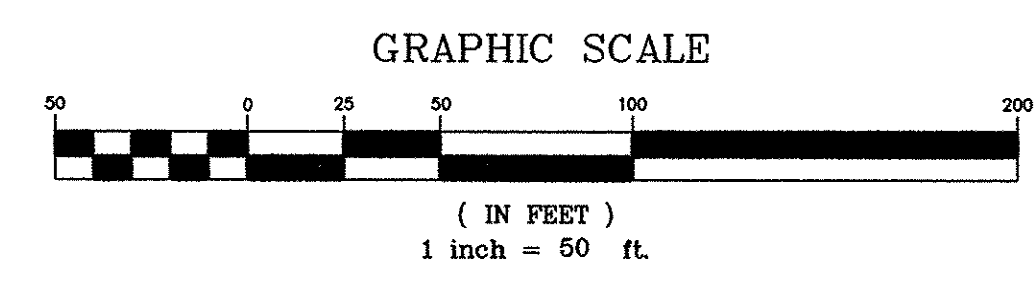


LEGEND

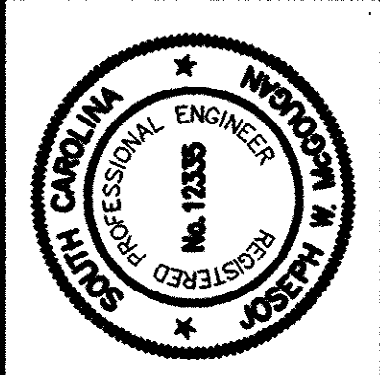
- PROPOSED FORCE MAIN
- EXISTING FORCE MAIN
- EXISTING OVERHEAD POWER
- EXISTING WATER MAIN
- EXISTING RIGHT OF WAY
- EXISTING DITCH LINE
- EXISTING RCP
- EXISTING FENCE
- EXISTING FIRE HYDRANT
- EXISTING GATE VALVE
- PROPOSED PLUG VALVE
- EXISTING WATER METER
- EXISTING TELEPHONE PEDESTAL
- EXISTING POWER POLE
- EXISTING MAILBOX

NOTES:

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REVISIONS		DATE	BY
1	MOVE LINE FM-1 TO R.O.F. OFF R/W	1/6/98	FED
2	PER SANTEE COOPER	1/7/98	FED
3	PER SANTEE COOPER	2/6/98	SWF
4	AS BUILT'S		

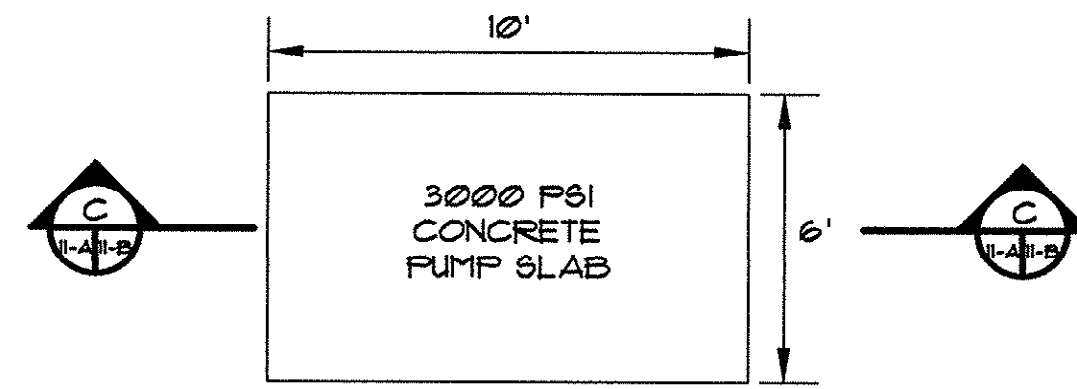


HOBBS, UPCHURCH & ASSOCIATES, PA.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

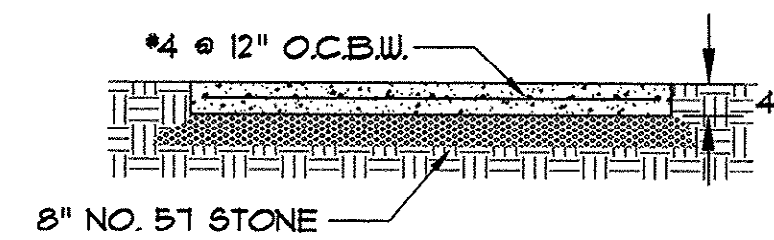
FORCE MAIN
PLAN AND PROFILE

TURF FARM
FORCE MAIN DIVERSION
GRAND STRAND WATER
AND SEWER AUTHORITY

DATE:	MARCH, 1998
DESIGNED:	WDL/BEB
DRAWN:	BEB
CHECKED:	JWM
SCALE:	1" = 50'
SHEET NO.	10
OF	16



PLAN VIEW

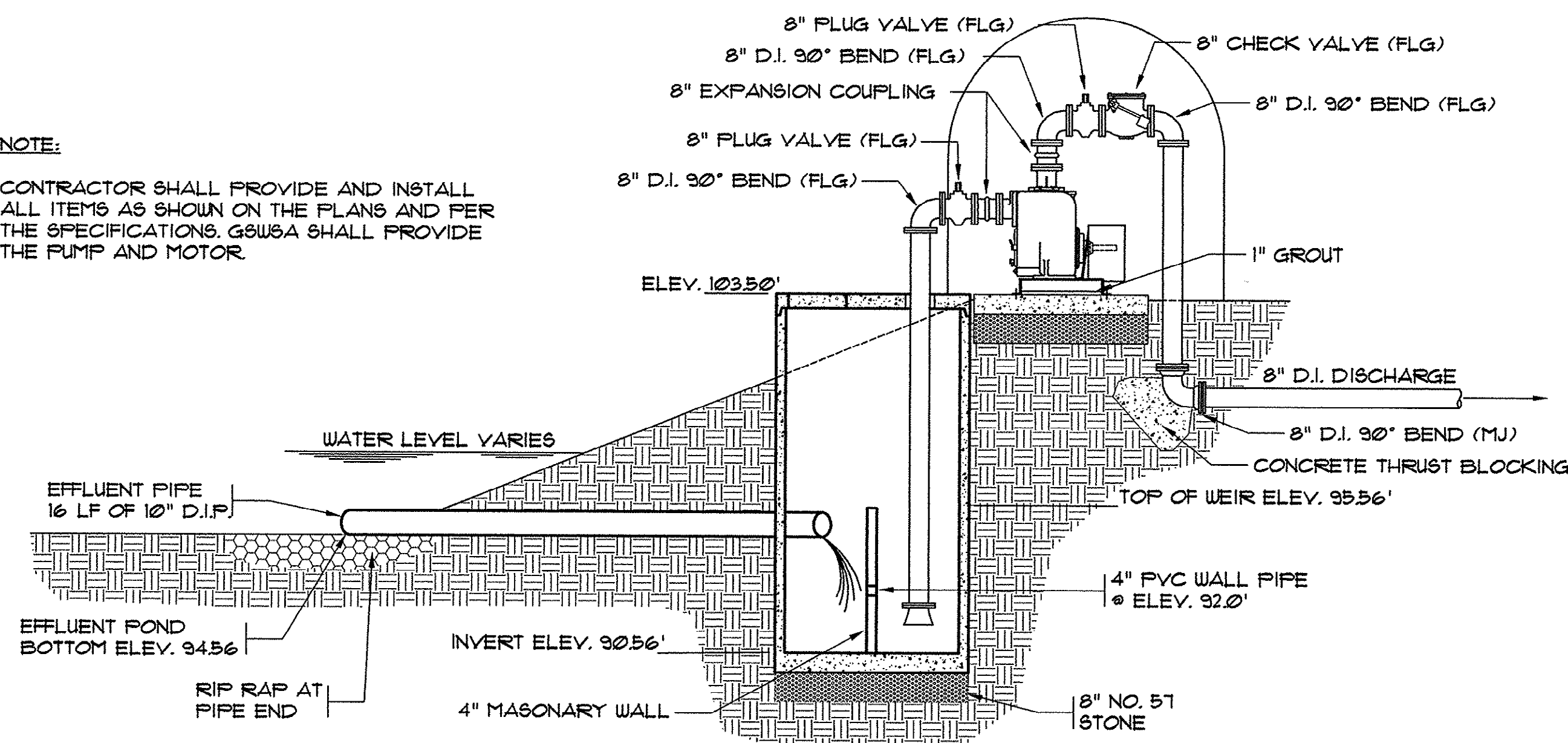


SECTION 'C' - 'C'

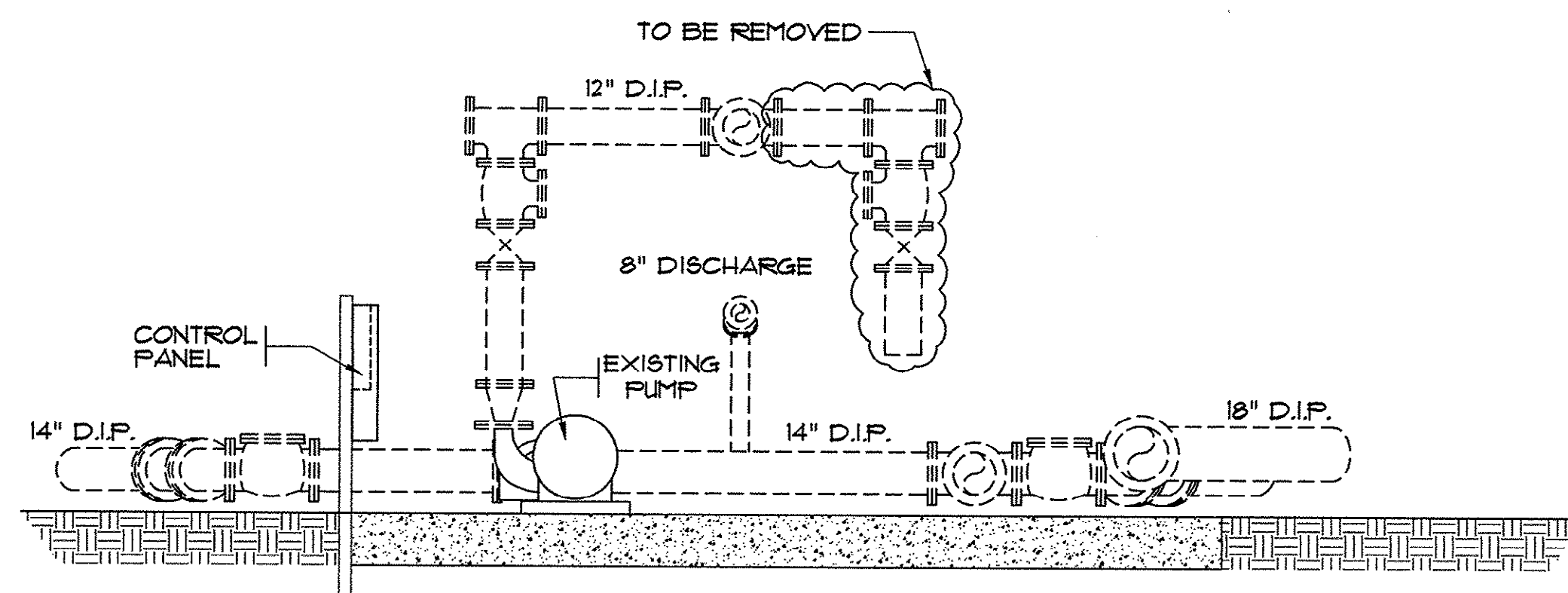
CONCRETE PUMP SLAB
SCALE: 1/4" = 1'-0"

NOTE:

CONTRACTOR SHALL PROVIDE AND INSTALL ALL ITEMS AS SHOWN ON THE PLANS AND PER THE SPECIFICATIONS. G&W&A SHALL PROVIDE THE PUMP AND MOTOR.

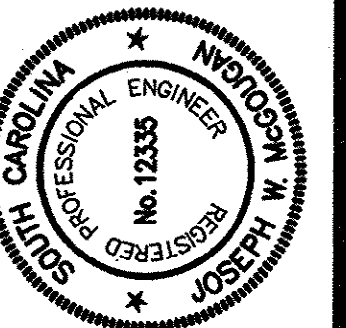


SECTION 'B' - 'B'
SCALE: 1/4" = 1'-0"



SECTION 'A' - 'A'
SCALE: 1/4" = 1'-0"

SYN.	DESCRIPTION	DATE	BY
	AS BUILT	06/99	SKF2



HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577



**PUMP STATION UPGRADE
DETAILS
AS BUILT**

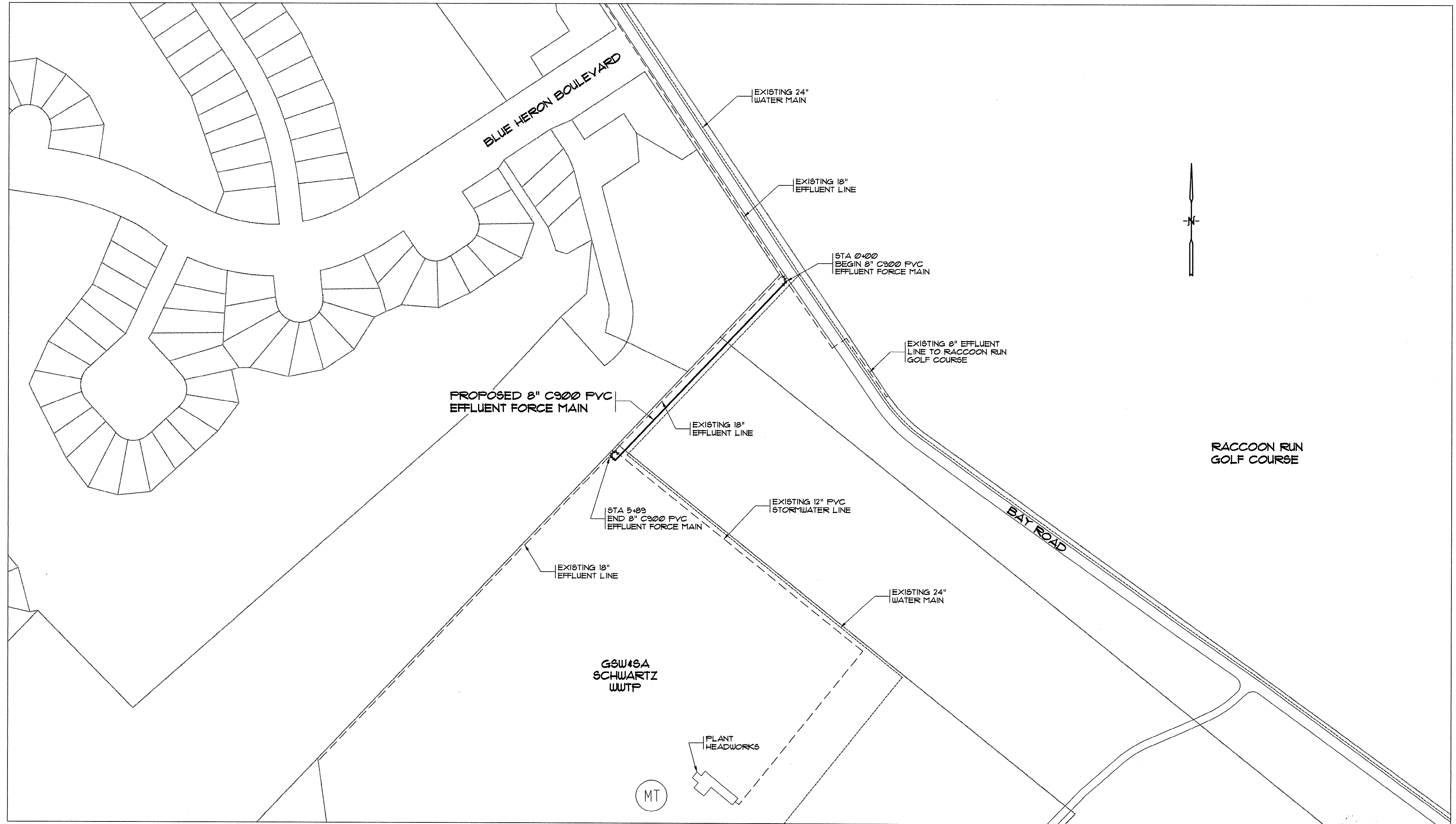
**TURF FARM
FORCE MAIN DIVERSION
GRAND STRAND WATER
AND SEWER AUTHORITY**

DATE:	MARCH, 1998
DESIGNED:	BEB
DRAWN:	BEB
CHECKED:	JWM
SCALE:	AS SHOWN

SHEET NO.	11-B
OF:	16

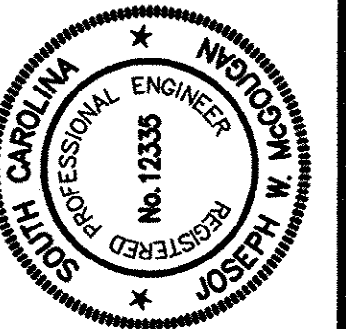
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HOBBS UPCHURCH & ASSOC.



LAYOUT MAP
N.T.S.

REVISIONS	
SYM.	DESCRIPTION
AS BUILT	AS BUILT



HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577



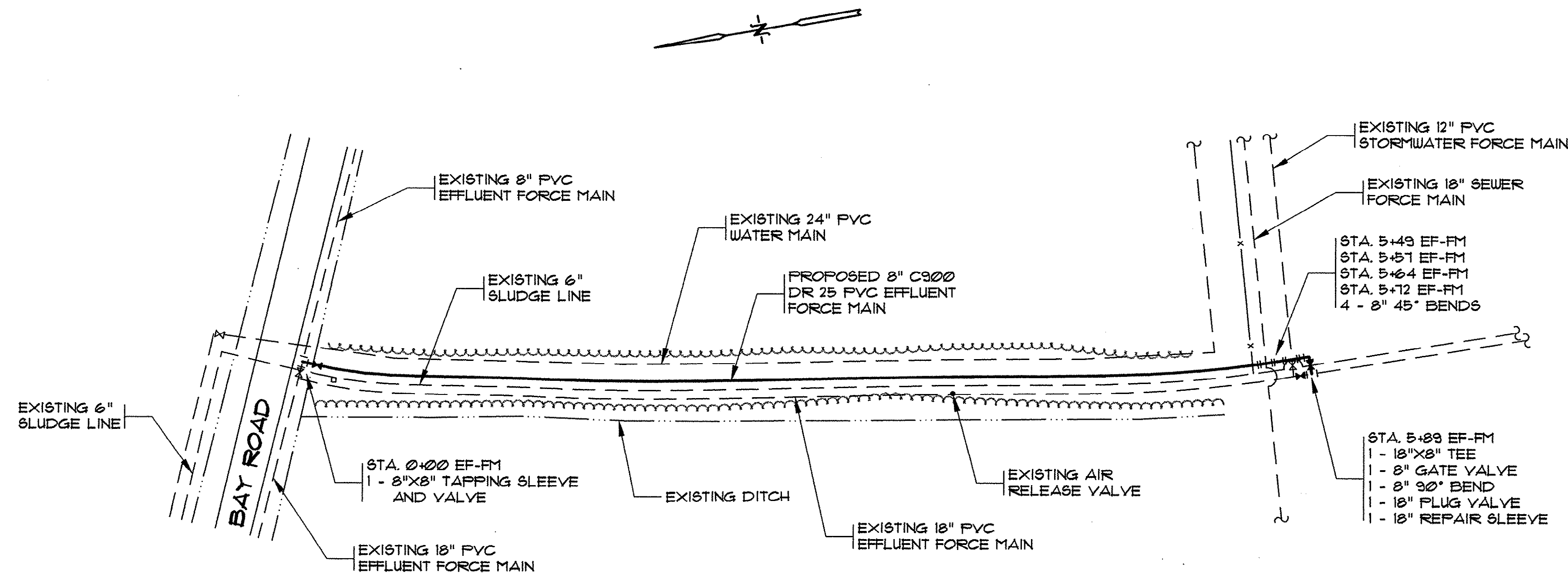
EFFLUENT FORCE MAIN
LAYOUT MAP

TURF FARM
FORCE MAIN DIVERSION
GRAND STRAND WATER
AND SEWER AUTHORITY

DATE:	MARCH, 1998
DESIGNED:	WDL/BEB
DRAWN:	BEB
CHECKED:	JWM
SCALE:	AS SHOWN

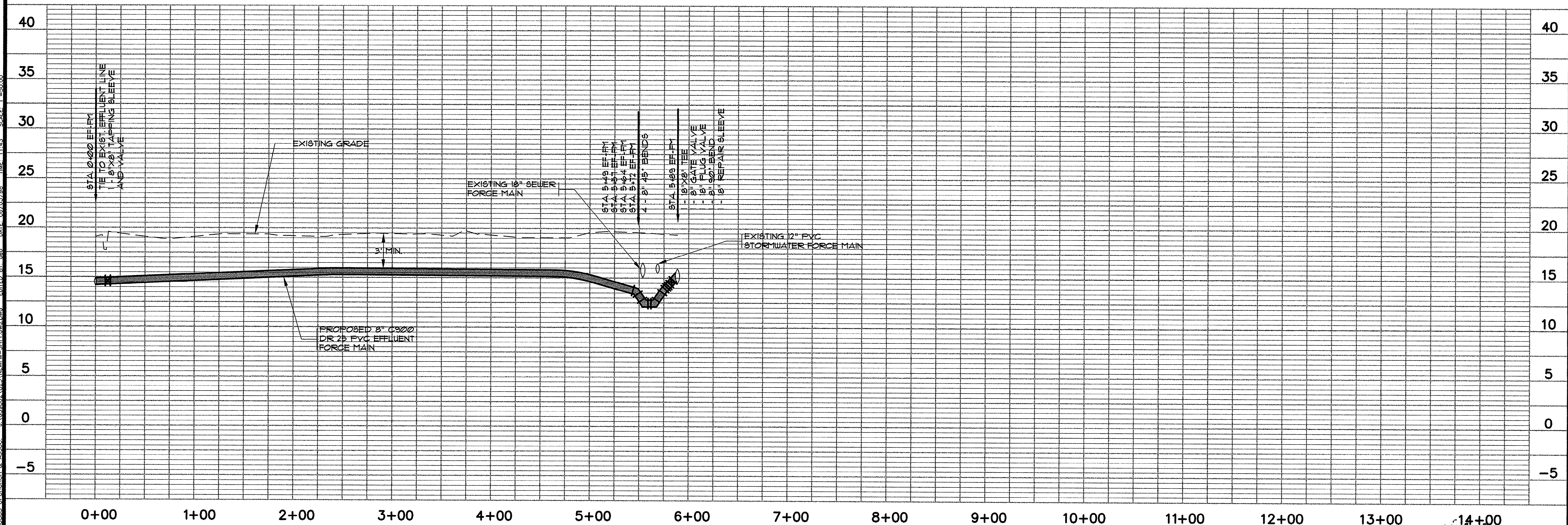
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OF:	16

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NOTE: ELEVATION IS ASSUMED

EFFLUENT FORCE MAIN

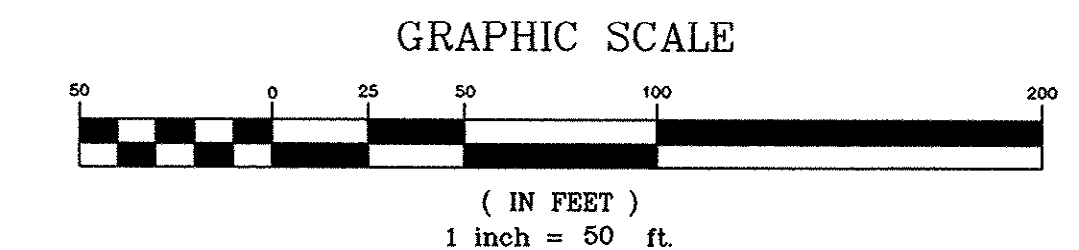


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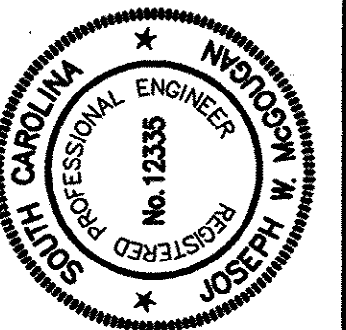
- 1.) THE CONTRACTOR SHALL CONTACT ALL APPLICABLE UTILITY COMPANIES FOR THE EXACT LOCATION OF ALL UNDERGROUND MAINS, CABLES, OR LINES BEFORE CONSTRUCTION BEGINS.
- 2.) PIPE SEPARATION: THE FOLLOWING MINIMUM PIPE SEPARATION WILL BE MAINTAINED: 12 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SANITARY SEWER AND STORM SEWERS, 18 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SEWER (INCLUDING FORCE MAINS) AND WATER MAINS, AND 10 FEET HORIZONTAL SEPARATION BETWEEN SANITARY SEWER (INCLUDING FORCE MAINS) AND WATER MAINS. IF THESE SEPARATIONS CANNOT BE MAINTAINED, DUCTILE IRON PIPE WILL BE USED 10 FEET EITHER SIDE OF CROSSING AND ALONG ENTIRE LENGTH OF LINE LESS THAN 10 HORIZONTAL FEET OR 18" VERTICAL SEPARATION FROM WATER MAINS. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER IN THE FIELD BEFORE PAYMENT WILL BE MADE AT DUCTILE IRON PRICES.

LEGEND

—	PROPOSED FORCE MAIN
- - -	EXISTING FORCE MAIN
- - - - -	EXISTING TELEPHONE/TV CABLE
- - - - -	EXISTING WATER MAIN
- - - - -	EXISTING RIGHT OF WAY
- - - - -	EXISTING DITCH LINE
- - - - -	EXISTING RCP
- x - x - x -	EXISTING FENCE
o	EXISTING POWER POLE
x	EXISTING GATE VALVE
x	PROPOSED PLUG VALVE
■	EXISTING TELEPHONE FEDESTAL



REVISIONS		DATE	BY
DESCRIPTION	AS BUILT	06/99	SKF
SYM.			



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MYRTLE BEACH, SOUTH CAROLINA 29577



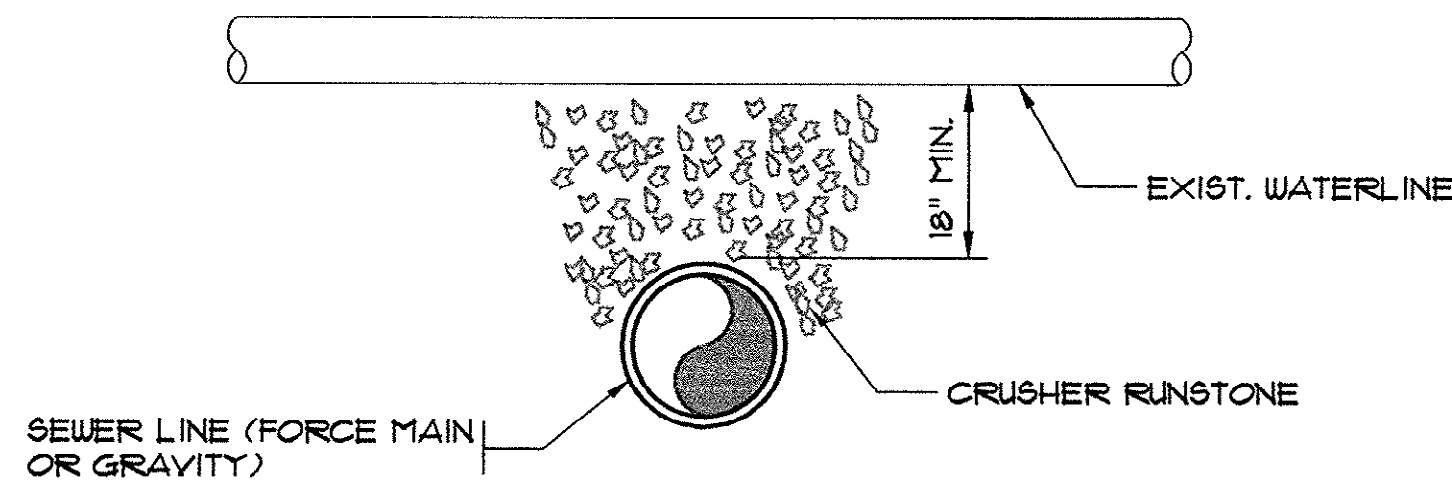
EFFLUENT FORCE MAIN
PLAN AND PROFILE

TURF FARM
FORCE MAIN DIVERSION
GRAND STRAND WATER
AND SEWER AUTHORITY

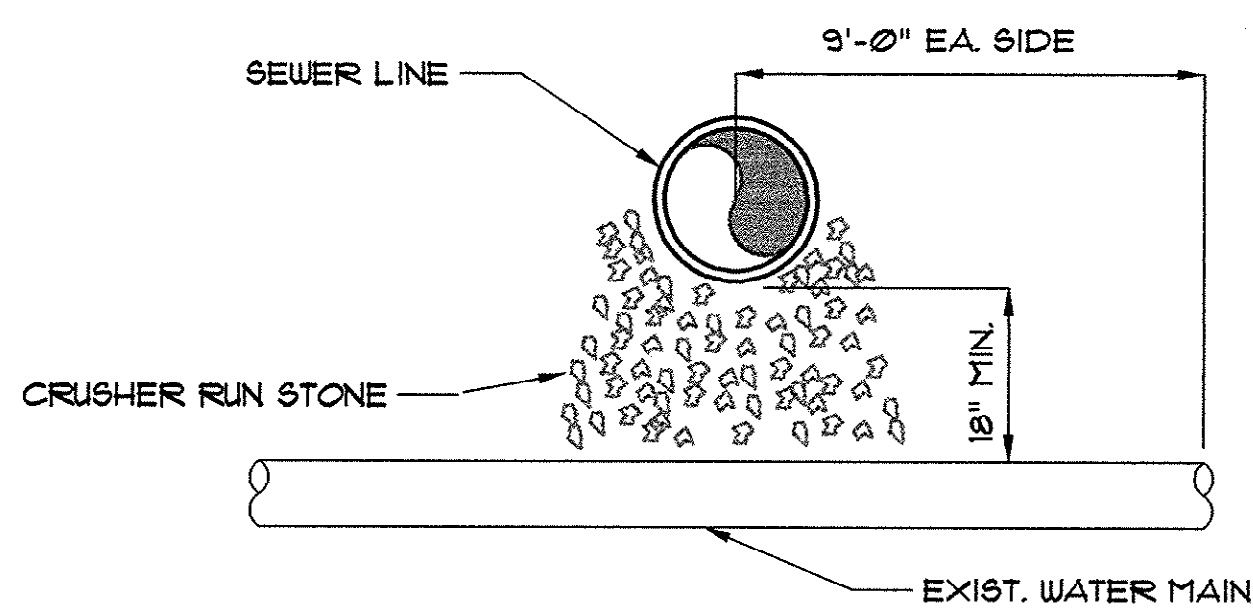
DATE:	MAY 1998
DESIGNED:	WDL/BEB
DRAWN:	PED
CHECKED:	JWM
SCALE:	1" = 50'

SHEET NO.	13
OF	16

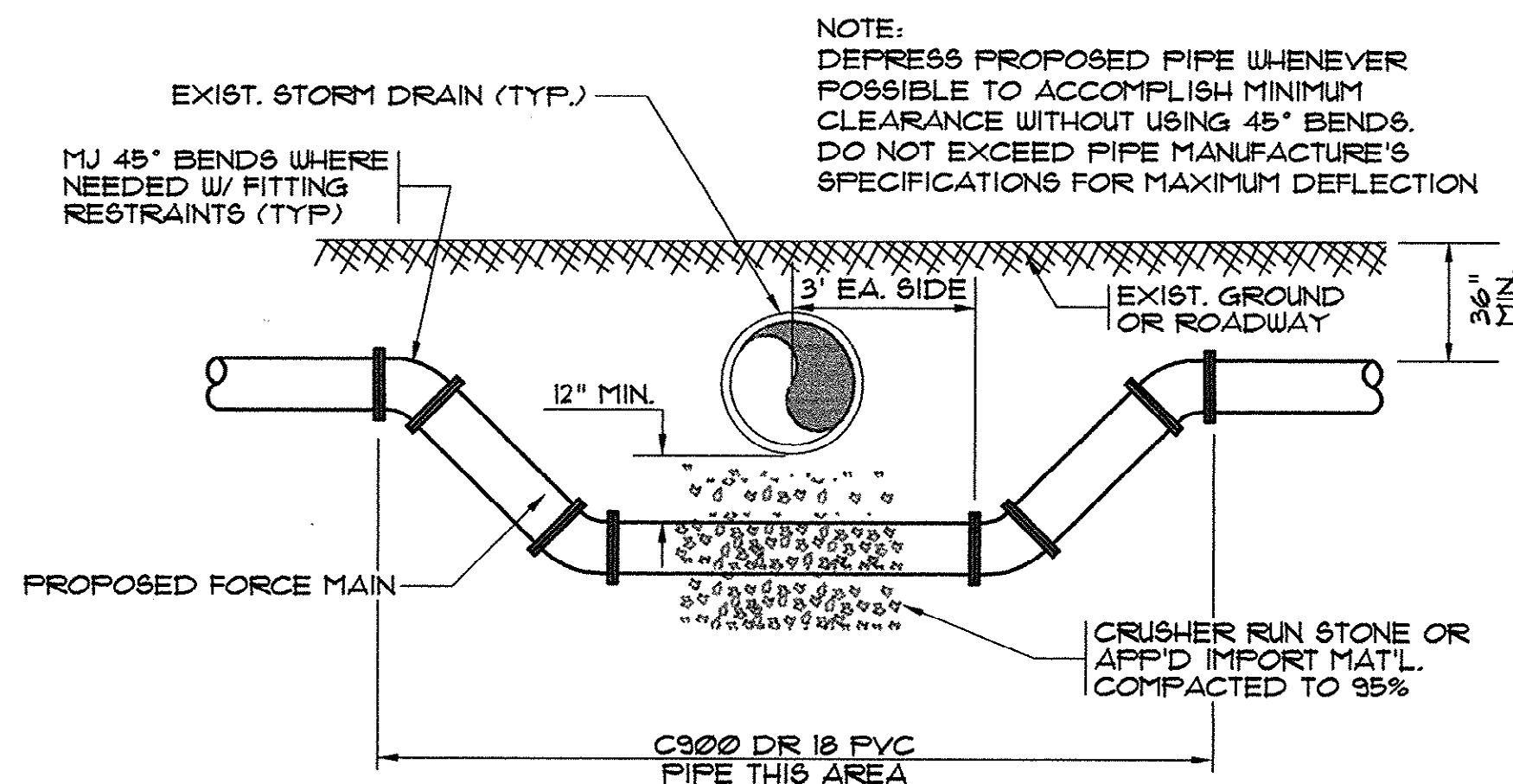
14-106-013/16-S



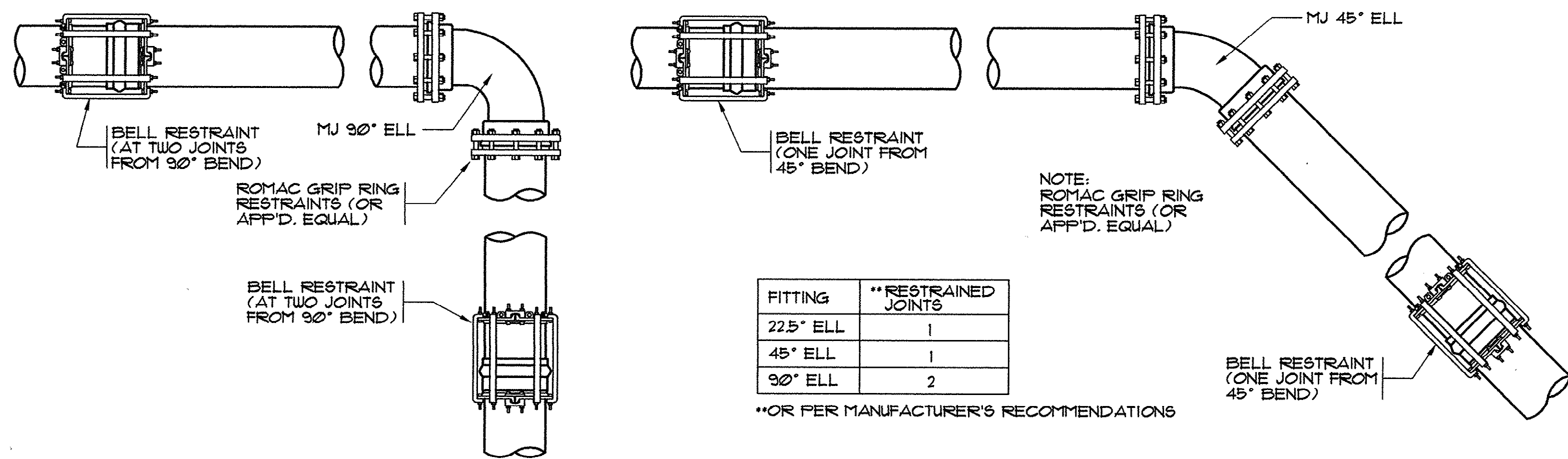
WATERLINE CROSSING
N.T.S.



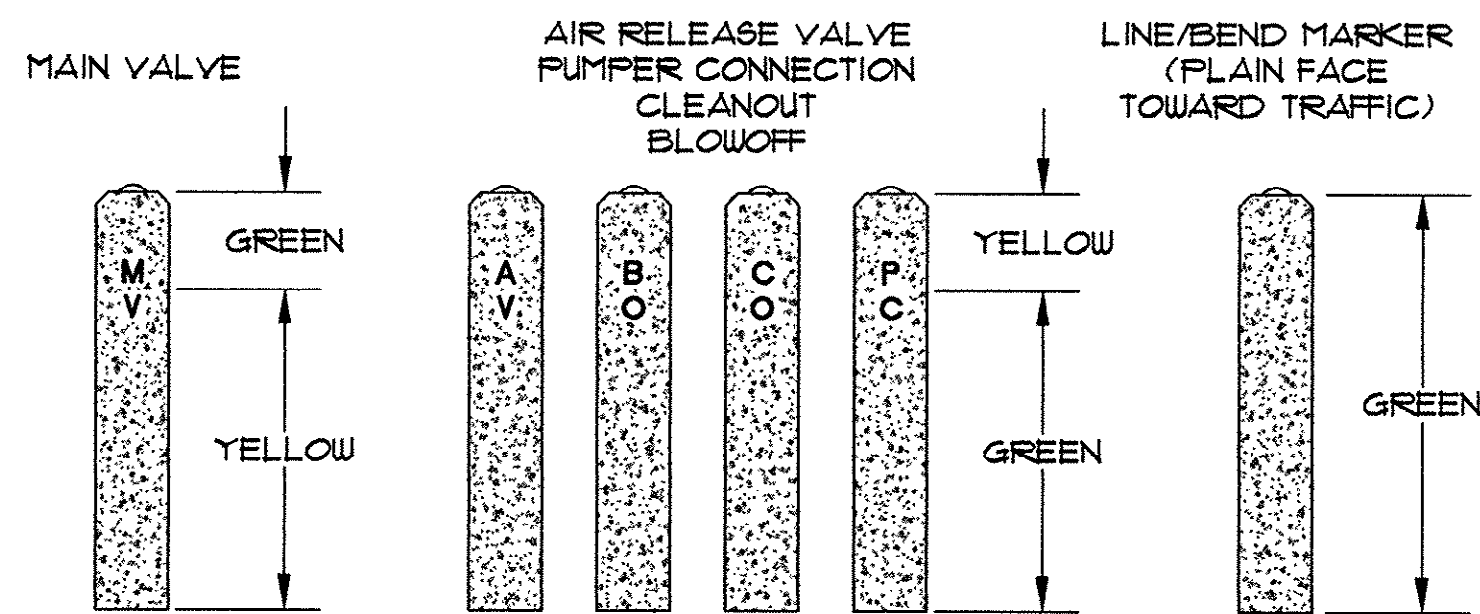
WATERLINE CROSSING



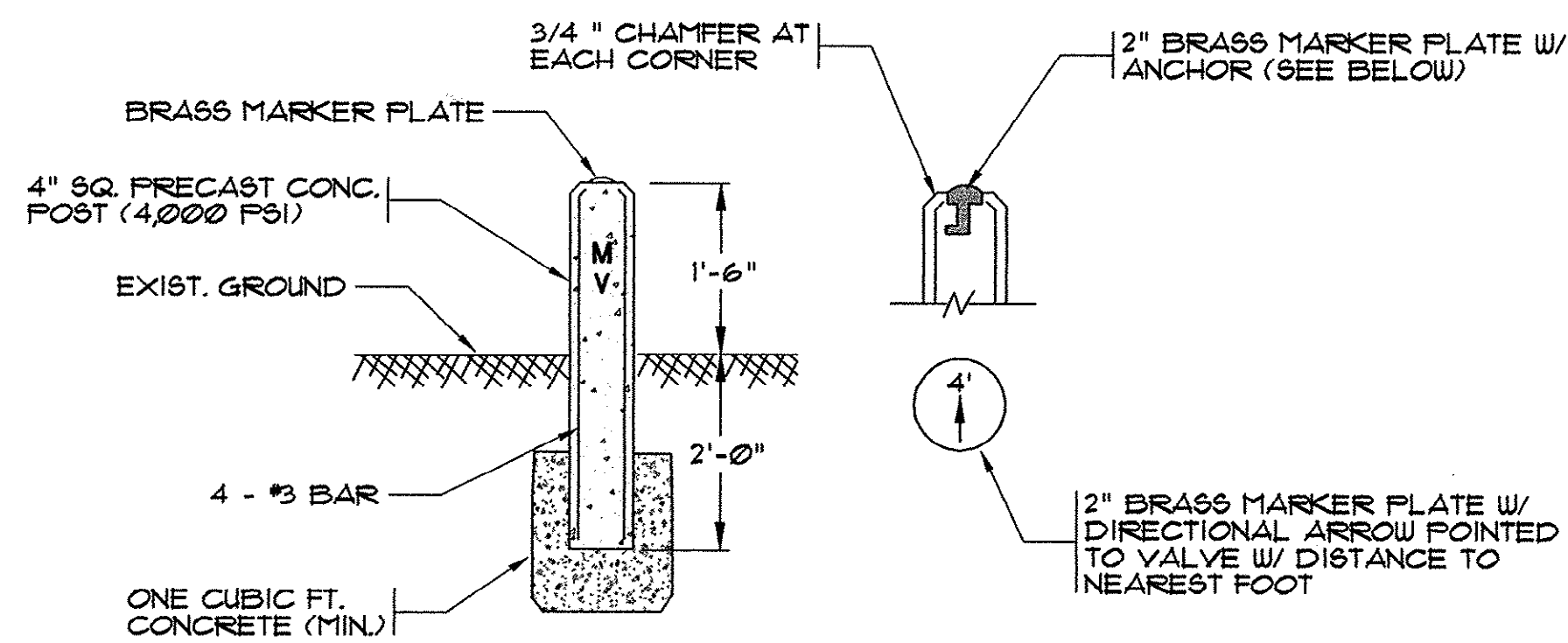
STORM DRAIN CROSSING
N.T.S.



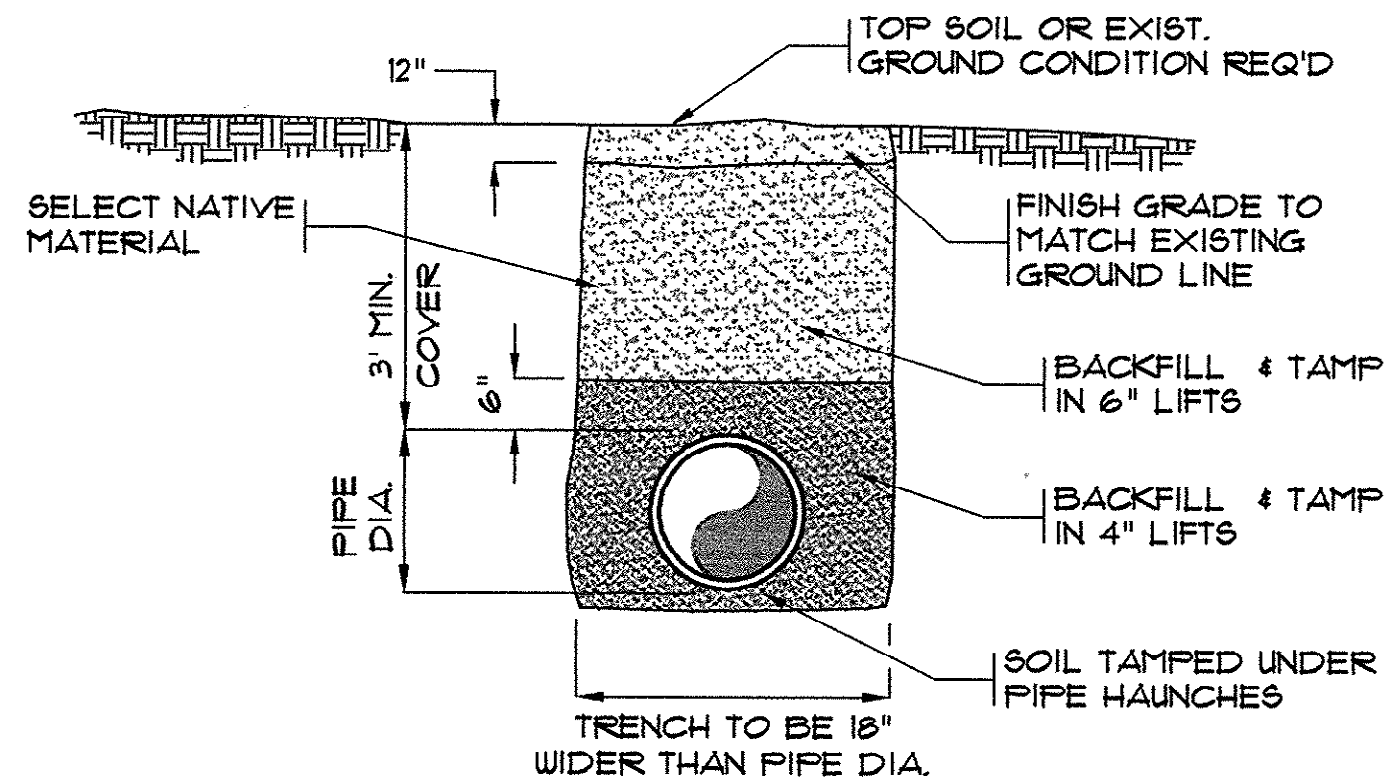
TYPICAL FITTING AND JOINT RESTRAINT
N.T.S.
(INCLUDES VALVES)



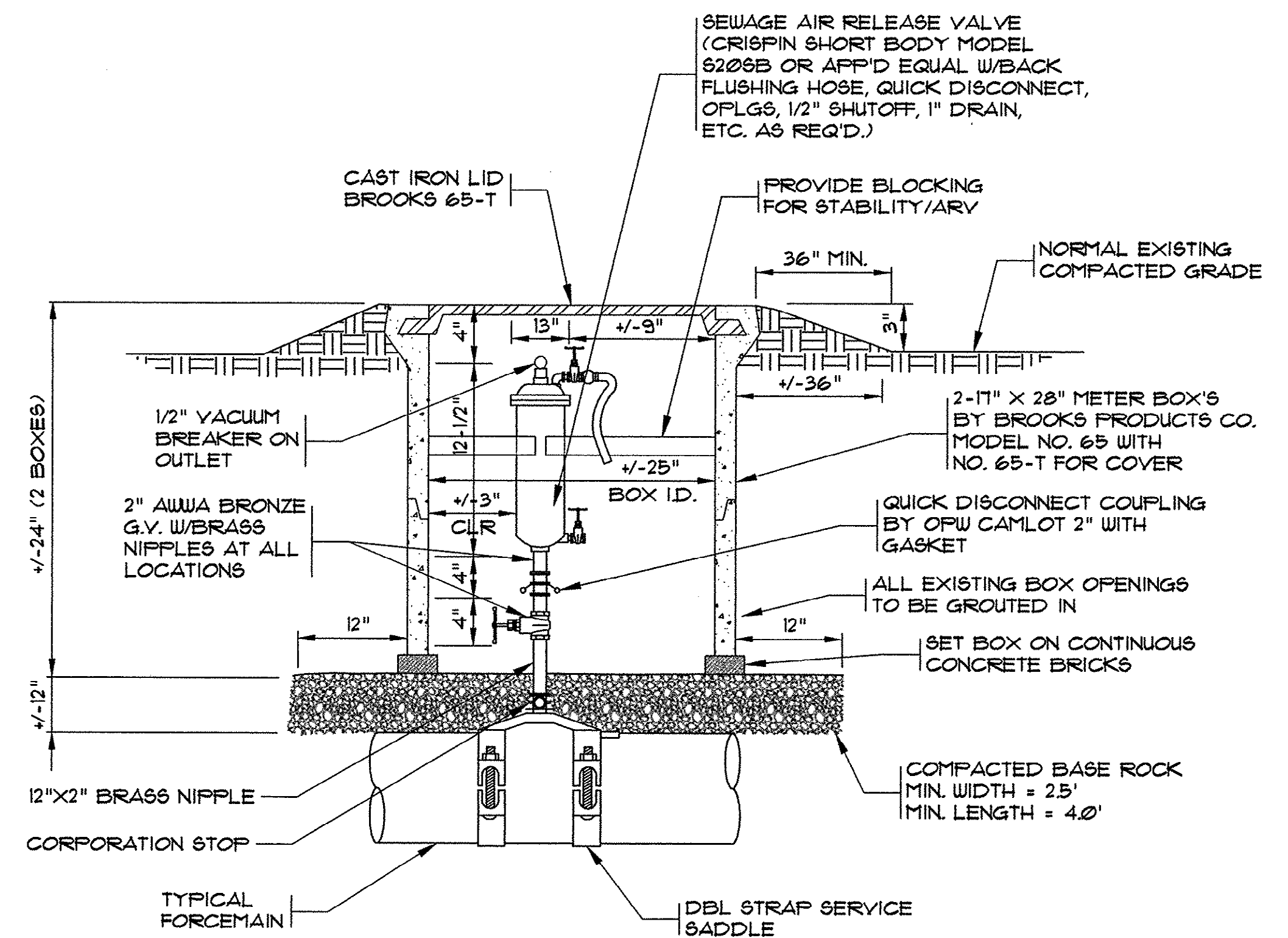
CONCRETE MARKER PAINT CODES



CONCRETE VALVE MARKER
(VALVE, ARV, BLOWOFF, CLEANOUT, PUMPER CONNECTION, BEND, PIPELINE)



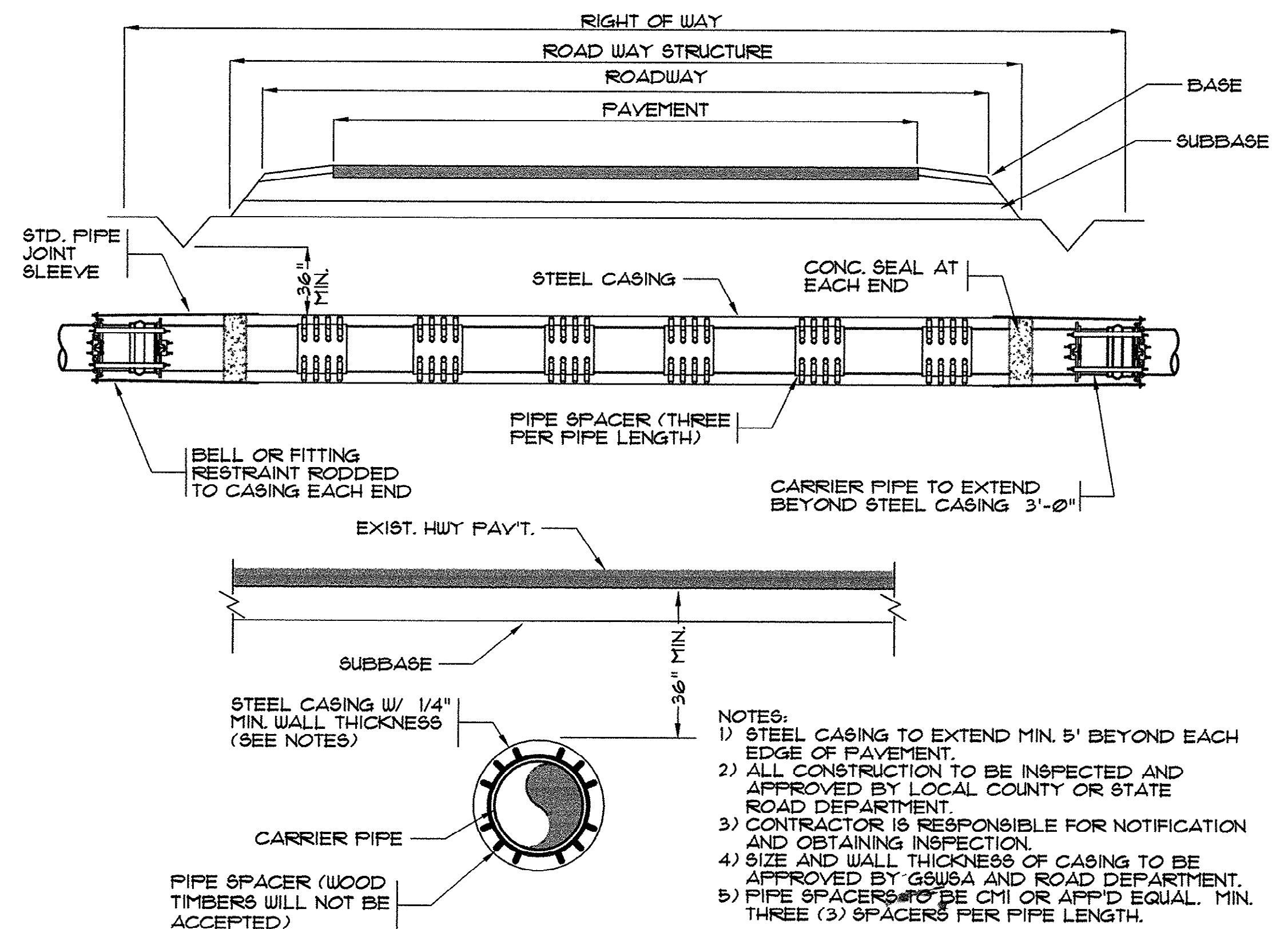
TYPICAL PIPE BEDDING DETAIL



NOTES:

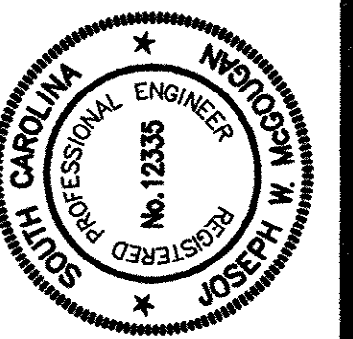
1. USE AN APPROVED JT. COMPOUND ON ALL THREADED CONNECTIONS.
2. ROTATION & LOCATION OF BOX SETTING TO BE APPROVED BY THE INSPECTOR PRIOR TO INSTALLATION.

TYPICAL SEWER AIR RELEASE VALVE ASSEMBLY



TYPICAL ROADWAY BORE & JACK
N.T.S.

REVISIONS	DATE	BY	DESCRIPTION
1	06/95	SKF2	AS BUILT



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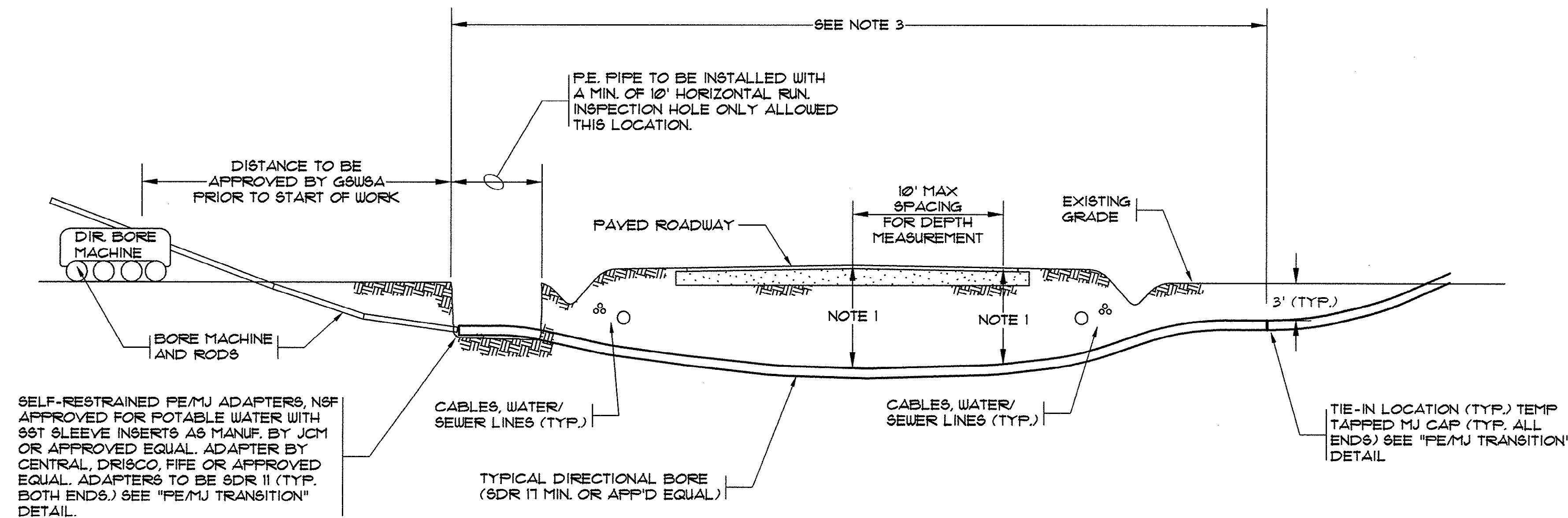


**MISCELLANEOUS
DETAILS**

**TURF FARM
FORCE MAIN DIVERSION
GRAND STRAND WATER
AND SEWER AUTHORITY**

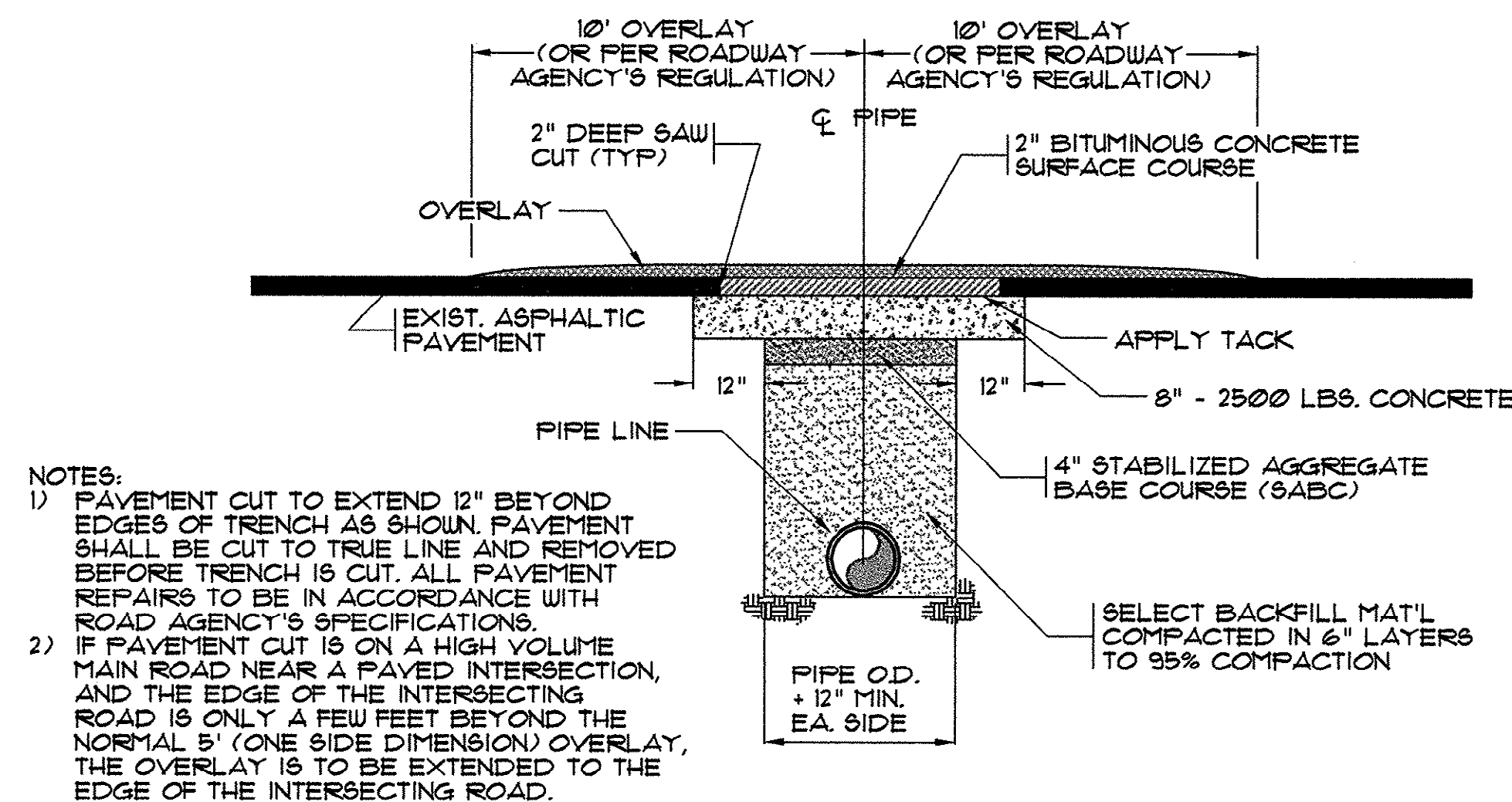
DATE:	MARCH, 1998
DESIGNED:	WDL/BEB
DRAWN:	BEB
CHECKED:	JWM
SCALE:	1" = 50'
SHEET NO.	14

14
16

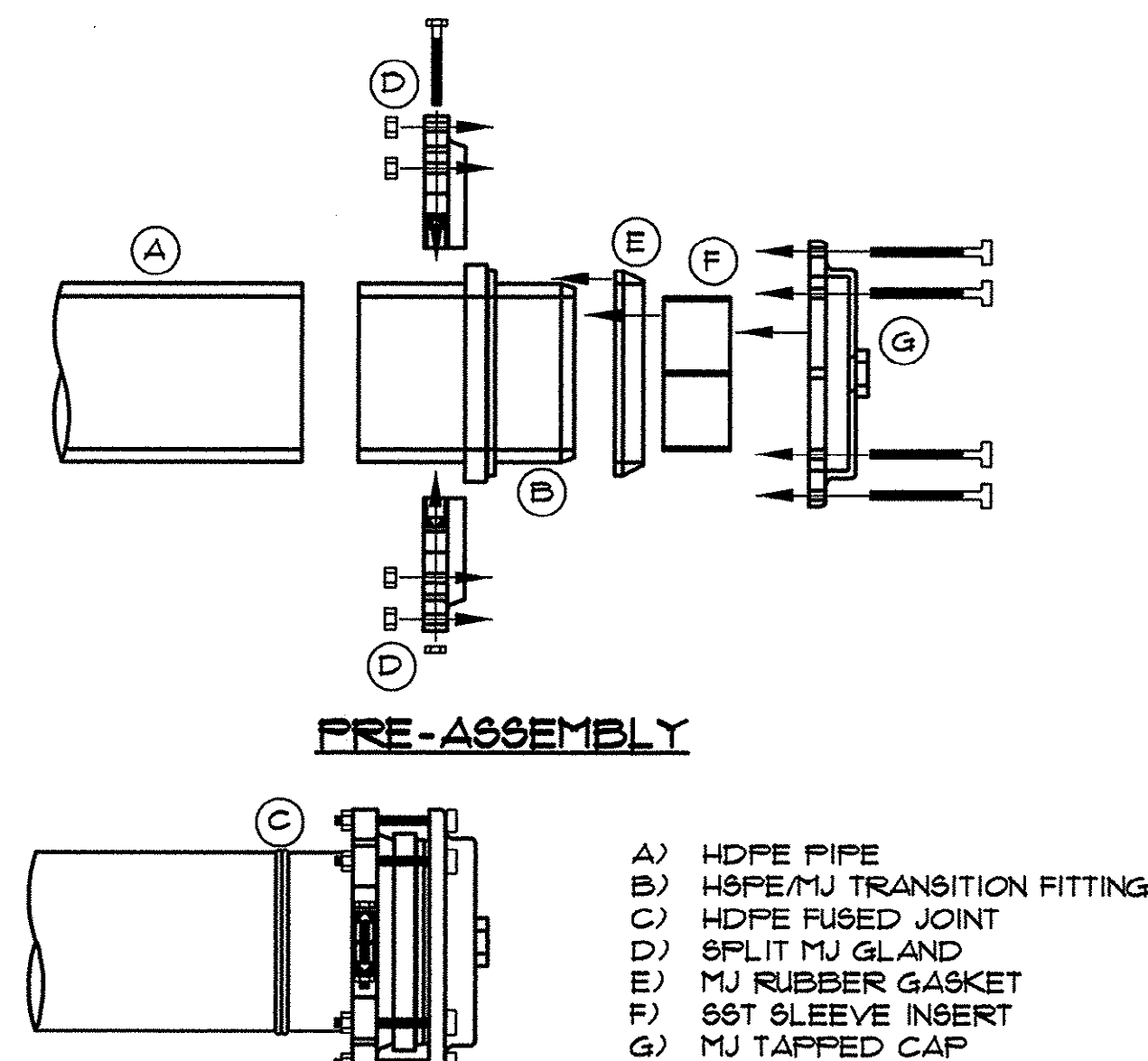


- NOTES:
1. A PROFILE AND PLAN SHALL BE PROVIDED FROM ENTRY TO EXIT FOR EACH DIRECTIONAL BORE SECTION BY THE DIRECTIONAL BORE CONTRACTOR.
 2. ALL BORE SECTIONS SHALL BE HYDROSTATICALLY TESTED PER GSW&A STANDARDS UPON COMPLETION OF INSTALLATION AND PRIOR TO CONNECTION TO THE MAIN PROJECT WATER/SEWER LINE.
 3. LENGTH OF CROSSING, LOCATION OF INSPECTION/OBSERVATION EXCAVATION, NUMBER OF P.E. PIPE JOINTS, LOCATION OF BORE MACHINE, AUGER ENTRANCE LOCATION, AND TIE-IN POINTS ARE TO BE APPROVED BY GSW&A PRIOR TO ANY START OF WORK OR ORDERING OF MATERIALS.
 4. THIS DETAIL IS ALSO APPLICABLE TO STREAMS, WETLANDS, LARGE STORM DRAINS, AND SIMILAR APPLICATIONS FOR DIRECTIONAL BORE WITH POLY-ETHYLENE PIPE.
 5. THE BORE DEVELOPED FOR THE LEAD IN END OF THE PIPE SHALL BE KEPT AT A MINIMUM DIAMETER FOR THE PIPE INSTALLATION. THE LEAD IN END SHALL BE PULLED THROUGH WITHOUT THE M.J. FLANGE ATTACHED FOR LARGER THAN 6" PIPE INSTALLATIONS. THE M.J. FLANGE FOR SAID LEAD IN END SHALL BE INSTALLED AFTER THE PIPE INSTALLATION WITH THE USE OF A SPLIT M.J. FLANGE PER THE DETAIL ON THIS DRAWING.

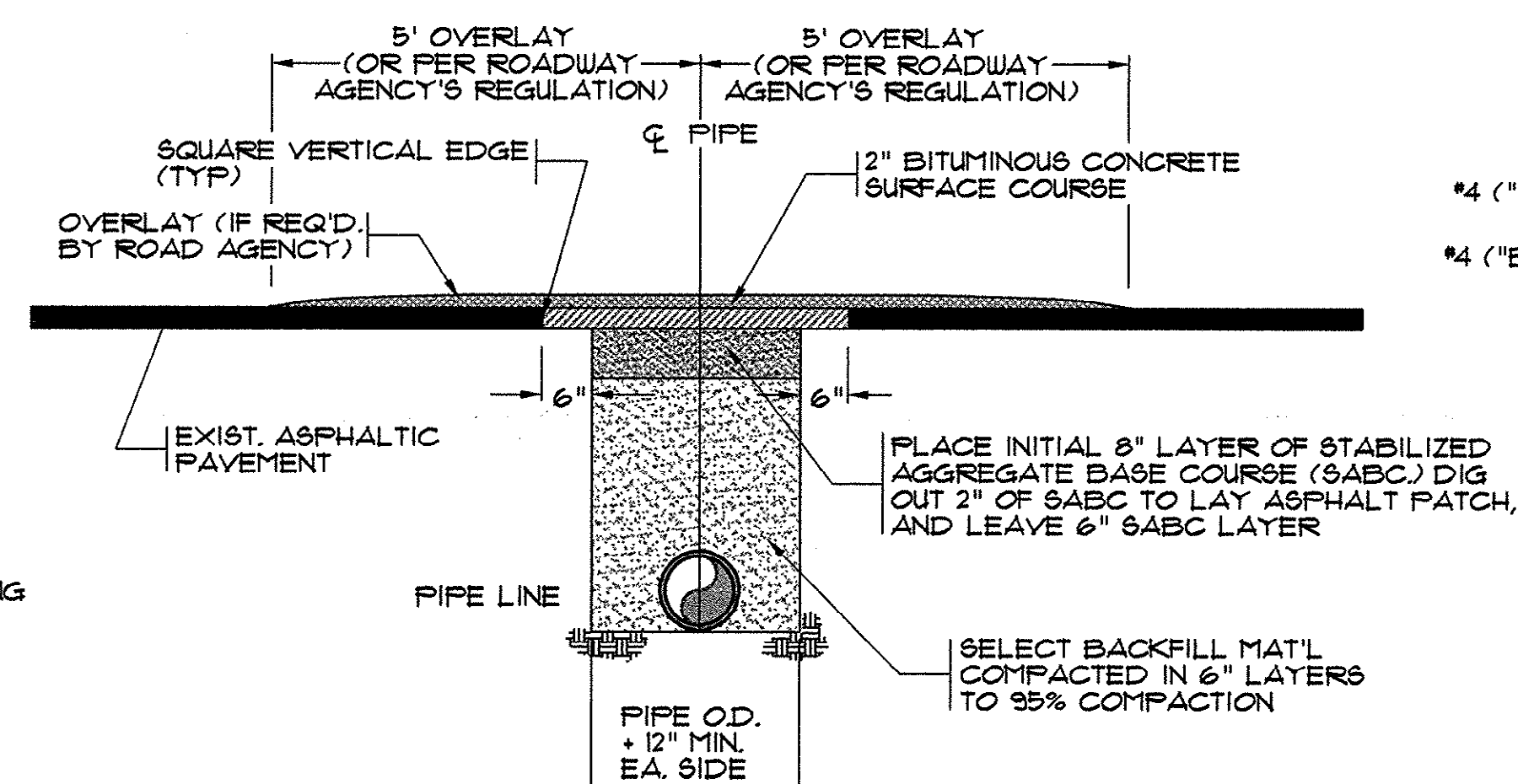
TYPICAL ROADWAY DIRECTIONAL BORE FOR POLYETHYLENE (PE) PIPE



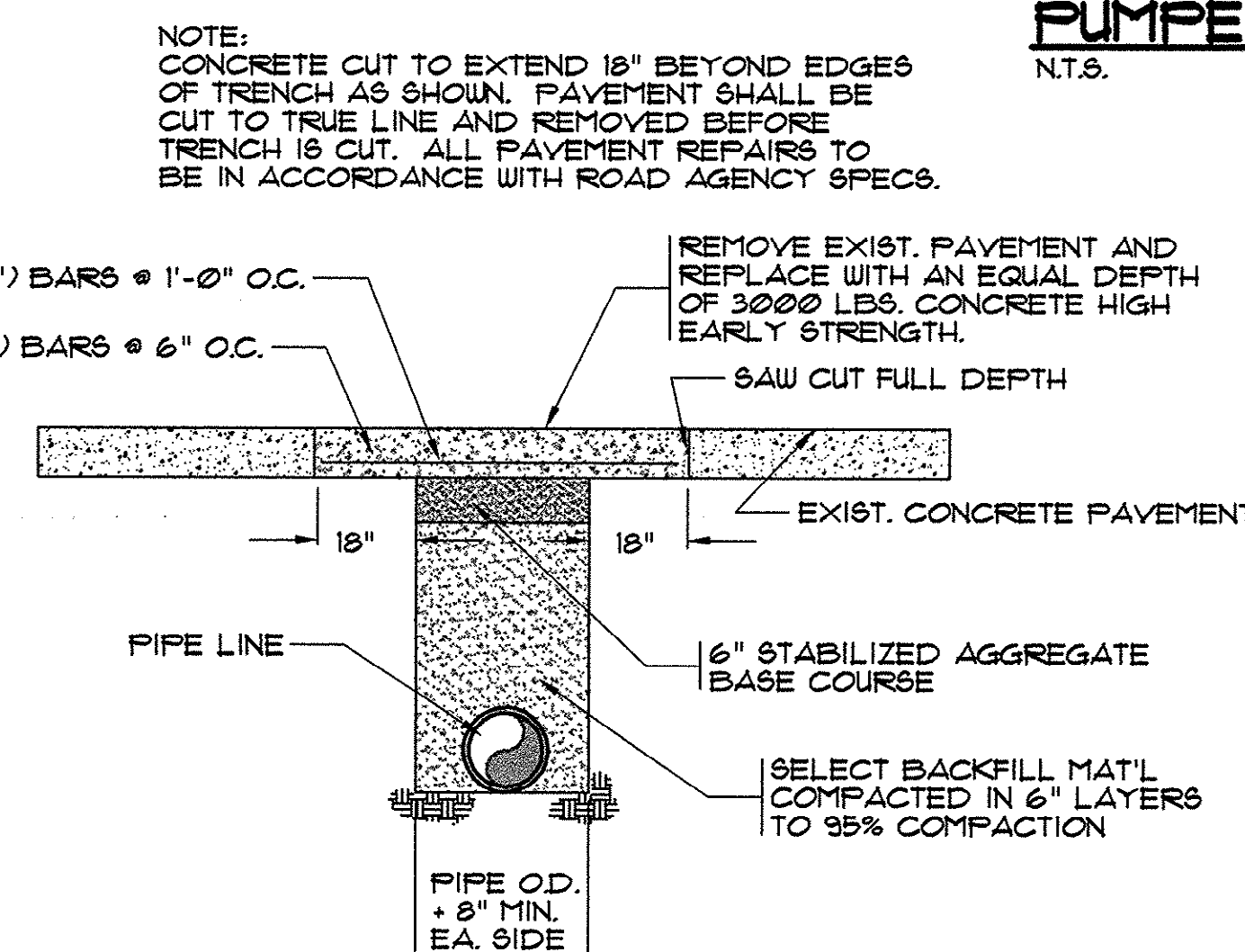
- NOTES:
- 1) PAVEMENT CUT TO EXTEND 6" BEYOND EDGES OF TRENCH AS SHOWN. PAVEMENT SHALL BE CUT TO TRUE LINE AND REMOVED BEFORE TRENCH IS CUT. ALL PAVEMENT REPAIRS TO BE IN ACCORDANCE WITH ROAD AGENCY SPEC'S.
 - 2) AGENCY MAY REQUIRE A 10' FLAT PATCH OF TRENCH AREA AND AN OVERLAY OF ENTIRE AFFRON OR ENTRANCE FROM THE EDGE OF THE MAIN ROAD TO THE EDGE OF THE ROAD RIGHT-OF-WAY (SEE ENCROACHMENT PERMIT).
 - 3) WHERE EXISTING PAVEMENT IS INSUFFICIENT THICKNESS TO DEVELOP TIGHT SEAL WITH NEW SURFACE, NEW PAVEMENT SHALL LAP EXISTING SURFACE WITH AT LEAST 12" OVERLAP ON BOTH SIDES FOR SMOOTH TRANSITION OR AS PER SPEC'S. OF ROAD AGENCY.



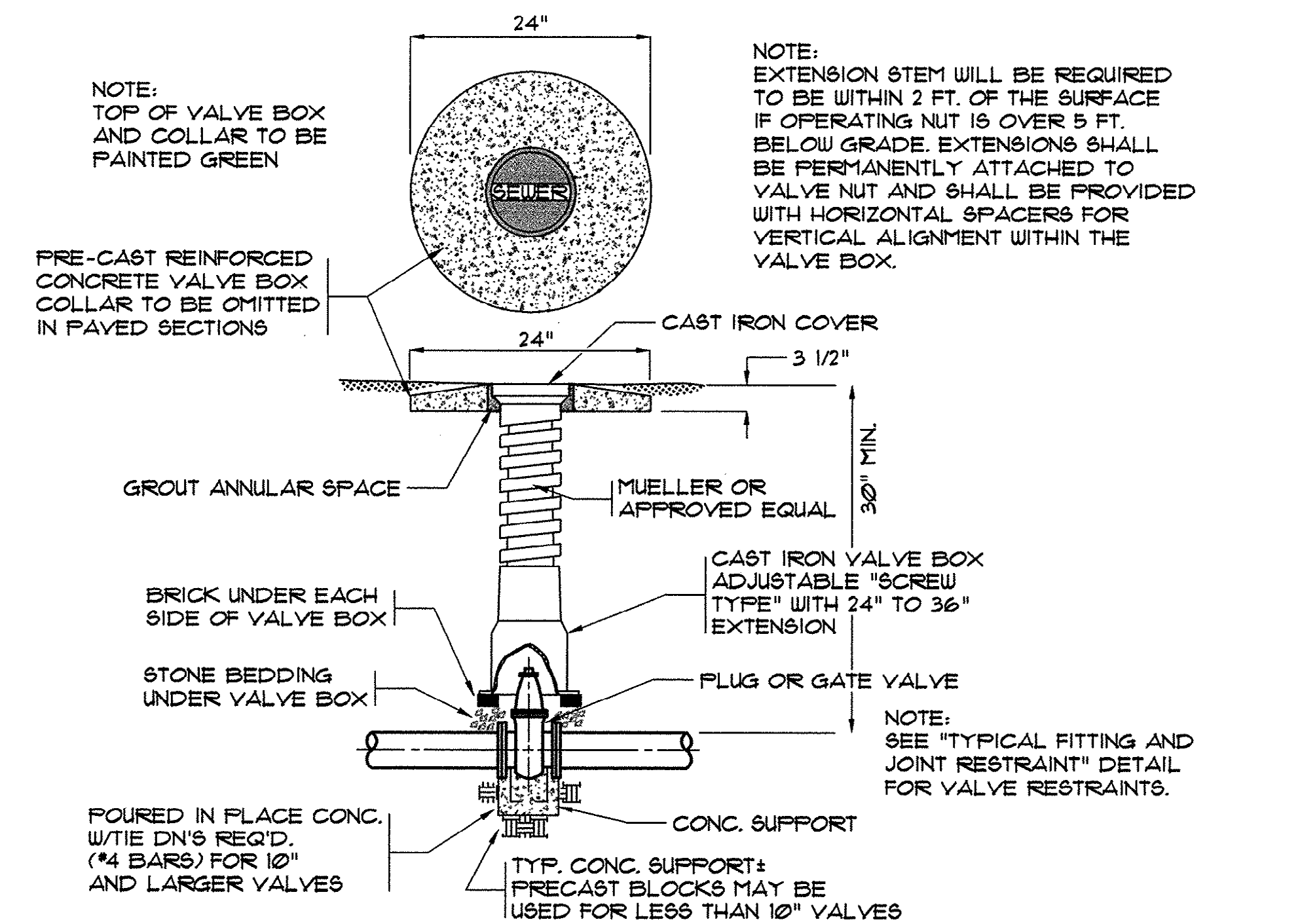
PEMJ TRANSITION ASSEMBLY
NLS



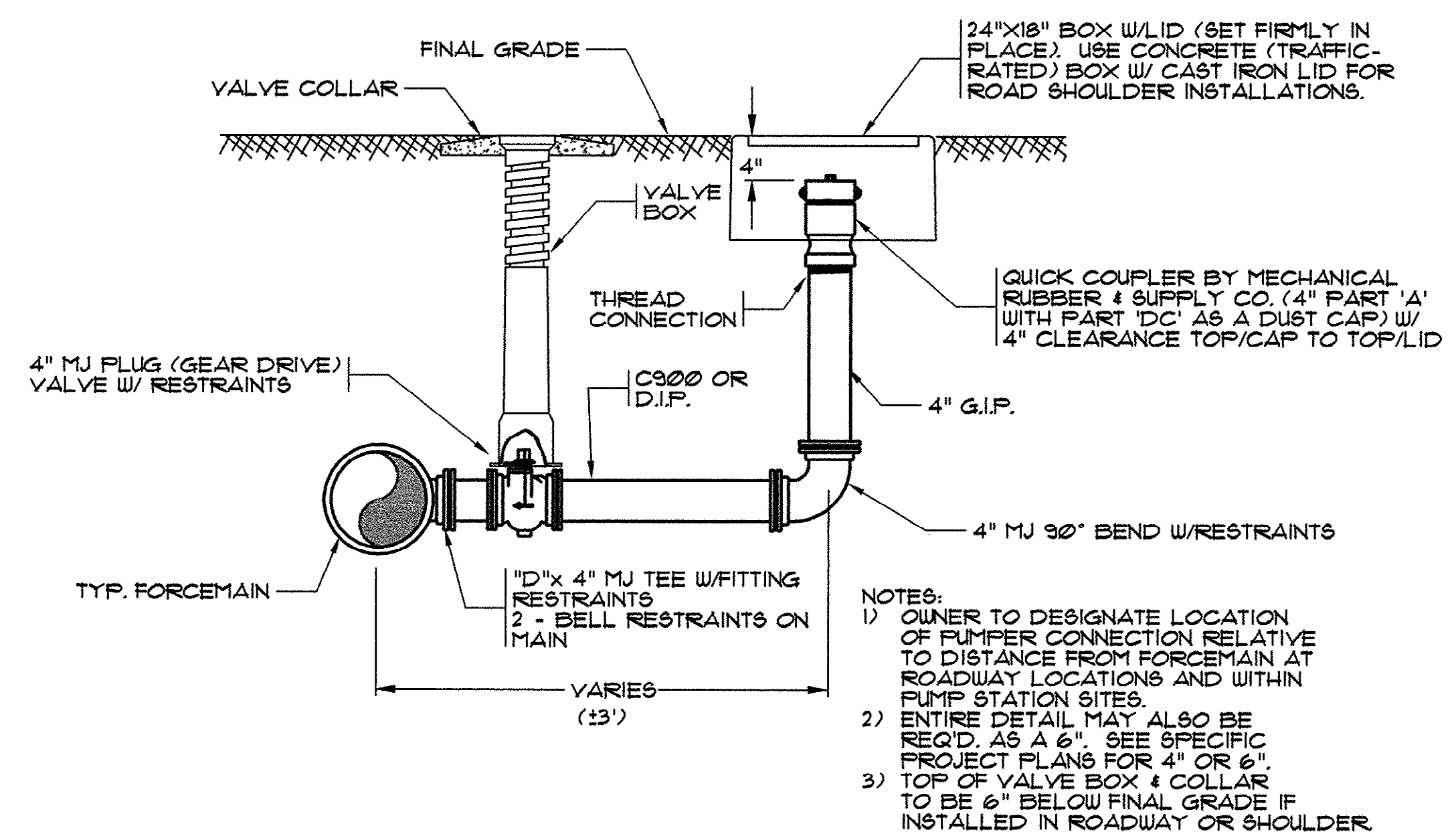
OPEN CUT REPAIR FOR LOW VOLUME ASPHALT PAVEMENT



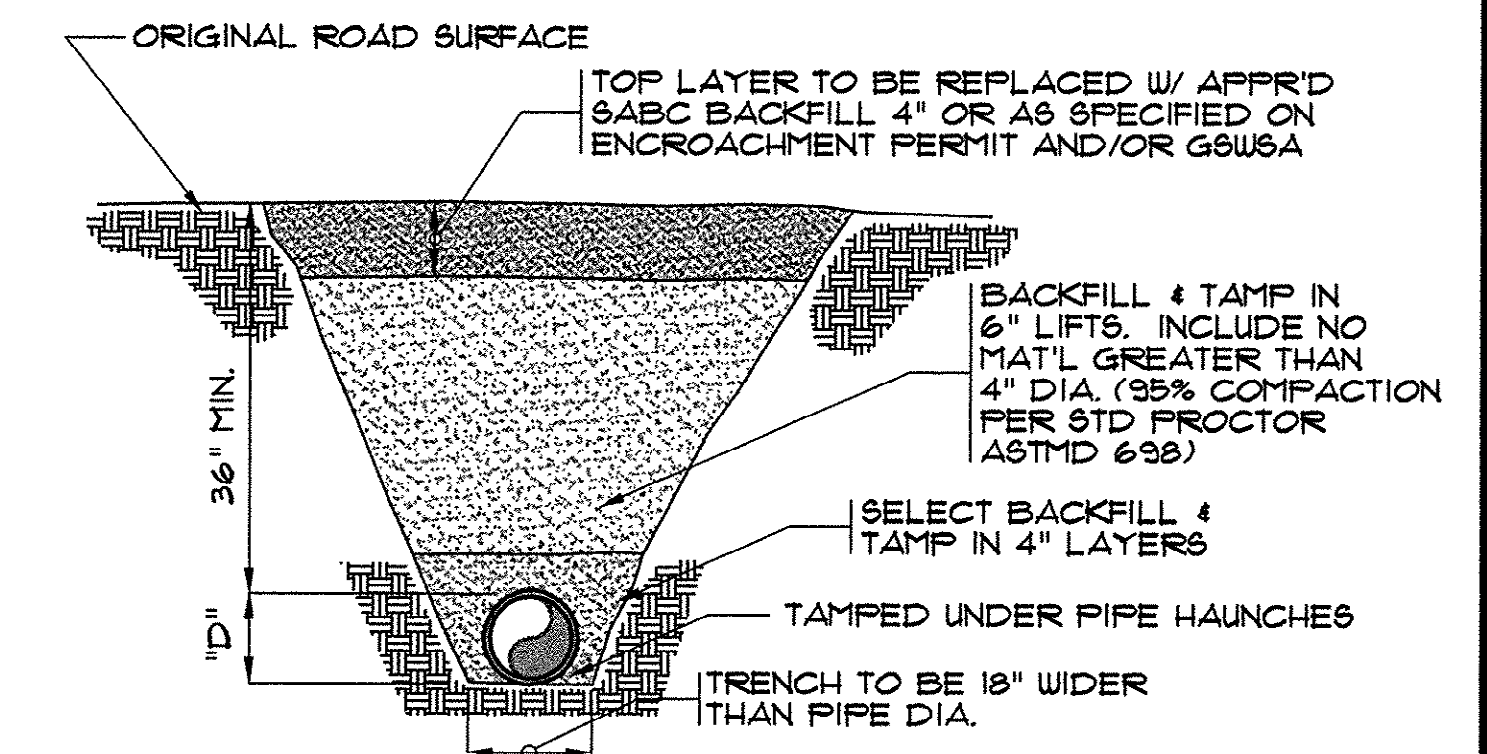
OPEN CUT REPAIR FOR CONCRETE PAVEMENT



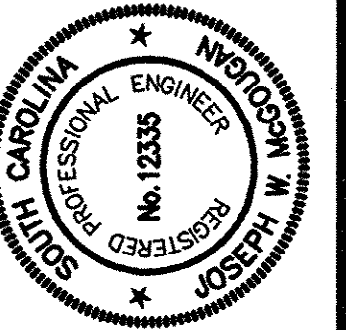
TYPICAL VALVE AND VALVE BOX
N.T.S.



PUMPER CONNECTION DETAIL



UNPAVED ROADWAY BEDDING DETAIL

[illegible]

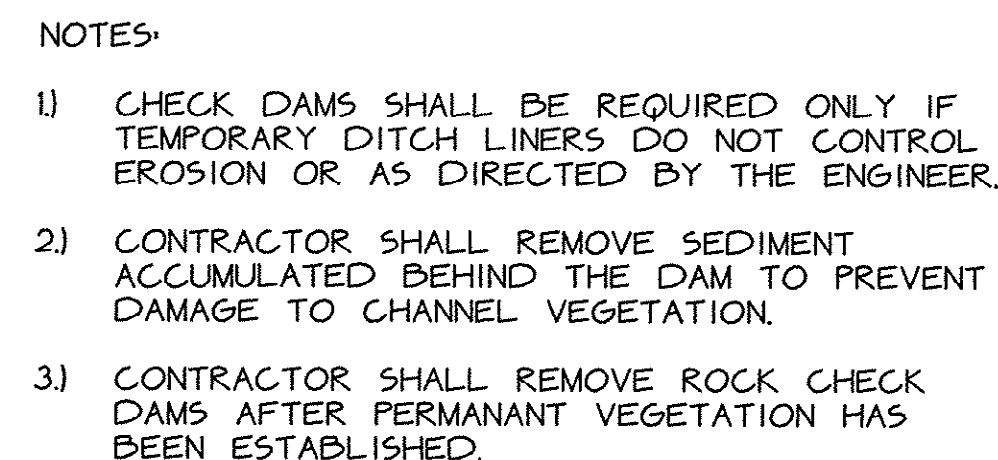
CONSULTING ENGINEERS
HOBBS, UPCHURCH & ASSOCIATES, P.A.
MYRTLE BEACH, SOUTH CAROLINA 29577



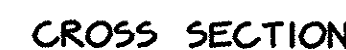
MISCELLANEOUS DETAILS

**TURF FARM
FORCE MAIN DIVERSION
GRAND STRAND WATER
AND SEWER AUTHORITY**

DATE:	MARCH, 1998
DESIGNED:	WDL/BEB
DRAWN:	BEB
CHECKED:	JWM
SCALE:	1" = 50'
SHEET NO.	3



SCALE: N.T.S



N.T.S.



N.T.S.



N.T.S



N.T.S



1. SILT FENCES SHALL BE INSTALLED AS SHOWN ON THE PLANS OR WHERE DIRECTED BY THE ENGINEER TO CONTROL EROSION.
2. REMOVE SEDIMENT PERIODICALLY. REPAIR ANY UNDERMINING IMMEDIATELY.

SCALE: NTS

1. UNLESS OTHERWISE INDICATED, ALL VEGETATION AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE EROSION + SEDIMENT CONTROL PLANNING + DESIGN MANUAL + ACCORDING TO THE SPECIFICATIONS.
2. ALL HARD SURFACE PUBLIC ROADS SHALL BE CLEAN AT THE END OF EACH WORK DAY, PROVIDE TEMPORARY CONSTRUCTION ENTRANCES AT THE LOCATIONS SHOWN ON THE PLANS OR AS OTHERWISE NECESSARY.
3. THE LOCATION OF ALL EROSION AND SEDIMENT CONTROL MEASURES ARE APPROXIMATE. THESE DEVICES SHALL BE LOCATED TO ACHIEVE MAXIMUM BENEFIT, IF DURING CONSTRUCTION THESE DEVICES ARE NOT SUFFICIENT TO ADEQUATELY CONTROL EROSION AND SEDIMENTATION, ADDITIONAL EROSION CONTROL DEVICES SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.
4. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AND DISPOSED OF WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION.
5. CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO PREVENT SEDIMENT (GENERATED BY CONSTRUCTION OR EROSION) FROM ENTERING STREAMS, CONSTRUCTION VEHICLES WILL NOT BE ALLOWED IN FLOWING STREAM CHANNELS OR TO DAMAGE THEIR BANKS. TEMPORARY STREAM CROSSINGS SHALL BE INSTALLED IN ALL FLOWING STREAMS WHICH WILL HAVE CONSTRUCTION TRAFFIC CROSSING THEM.
6. STOCKPILING OF EXCESS MATERIALS IN WETLAND AREAS IS NOT ALLOWED.
7. IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED AFTER EACH RAINFALL OR WEEKLY, WHICHEVER IS MORE FREQUENT (AT LEAST DAILY DURING PERIODS OF PROLONGED RAINFALL). CONTRACTOR SHALL CLEAN AND REPAIR ACCORDINGLY.
8. ALL WORK PERFORMED SHALL BE IN COMPLIANCE WITH GSWA STORM WATER POLLUTION PREVENTION PLAN.

SHEET NO. 16 OF 16