

# CONSTRUCTION PLANS FOR CLAM BAYOU-DINKINS BAYOU BOX CULVERT TRIPLE 10' X 6'

**UTILITIES PROVIDING SERVICE:**

**WATER**

ISLAND WATER ASSOC. INC.  
3831 SANIBEL-CAPTIVA ROAD  
SANIBEL, FLORIDA, 33957  
PHONE (239) 472-1502

**SEWER**

CITY of SANIBEL UTILITIES DEPT.  
800 DUNLAP ROAD  
SANIBEL, FLORIDA, 33957  
PHONE (239) 472-1648

**TELEPHONE:**

SPRINT  
1520 LEE STREET  
FORT MYERS, FLORIDA 33901  
PHONE (239) 336-2030

**ELECTRIC:**

LEE COUNTY ELECTRICAL CO-OP  
4680 BAYLINE DRIVE  
NORTH FT. MYERS, FLORIDA, 33917  
PHONE (239) 995-2121

**CABLE TELEVISION:**

COMCAST CABLEVISION  
2831 MICHIGAN AVE.  
FT. MYERS, FLORIDA, 33916  
PHONE (239) 732-3865

**GAS:**

TECO GAS  
5801 ENTERPRISE PKWY.  
FORT MYERS, FLORIDA, 33905  
PHONE (239) 690-5508

**FIRE CONTROL DISTRICT:**

SANIBEL FIRE AND RESCUE  
2351 PALM RIDGE ROAD  
SANIBEL, FLORIDA, 33957  
PHONE (239) 472-9325

**GARBAGE COLLECTION:**

FLORIDA RECYCLING SERVICE, INC.  
2465 HIGHLAND AVENUE  
FORT MYERS, FLORIDA 33916  
PHONE (239) 332-8500

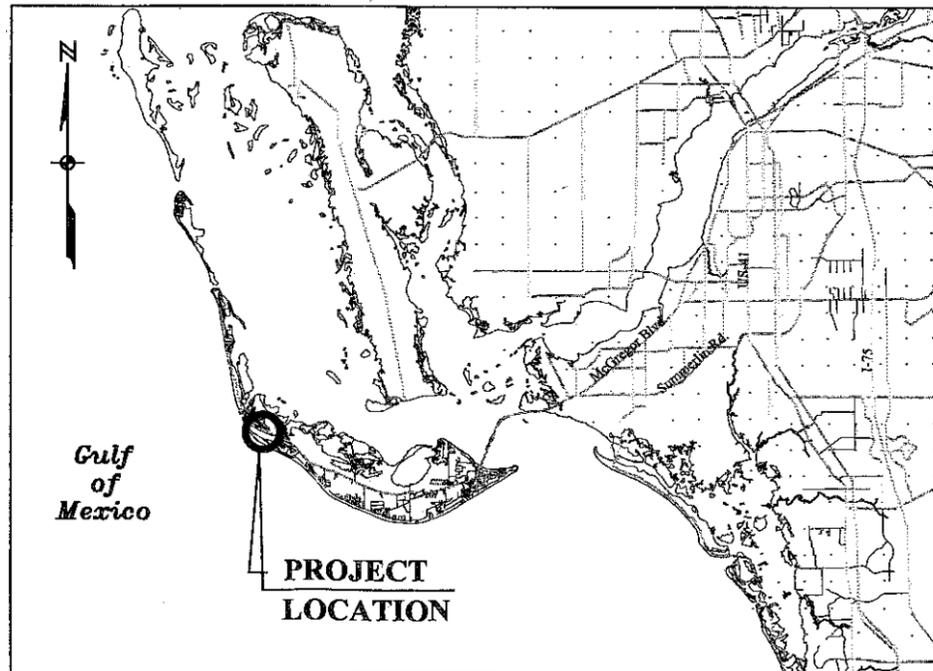
**SUNSHINE STATE ONE CALL**

PHONE (800) 432-4770

**INDEX OF PLANS**

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**SECTION 12 TOWNSHIP 46 S., RANGE 21 E.  
SANIBEL, FLORIDA**



**LOCATION MAP**

JULY, 2005

**SP** (2) JWM  
8/10/05 →

0129275-100  
DSSP

PERMIT NO:  
COMPLIANCE WITH REGULATIONS  
CONDITIONS MUST BE COMPLIED WITH  
When Requesting Bacteriological  
Testing by Health Dept.

**OWNER**



CITY OF SANIBEL  
800 DUNLAP ROAD  
SANIBEL, FLORIDA 33957  
PH: 239-472-6397  
FAX: 239-472-6041

**RECEIVED**

AUG 09 2005

Lee County Health  
Department  
Engineering

**JOHNSON  
ENGINEERING**

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FAX (239) 334-3661  
E.B. #642 & L.B. #642

REGISTERED PROFESSIONAL ENGINEER  
FLORIDA LICENSE NO. 57634

David V. Willems

DATE 7/28/05

**ABBREVIATIONS**

AC	ACRE
ALT	ALTERNATE
APPROX.	APPROXIMATE
BM	BENCH MARK
BLDG.	BUILDING
BOT	BOTTOM
CB	CATCH BASIN
CCP	CORRUGATED METAL PIPE
CD	CLEANOUT
CV	CHECK VALVE
CL	CENTER LINE
CLF	CHAIN LINK FENCE
CONC	CONCRETE
CONST	CONSTRUCTION
DIA.	DIAMETER
DM	DIMENSION
DEST	DISTANCE
DE	DRAINAGE EASEMENT
EA	EACH
EL/ELEV	ELEVATION
ELCP	ELLIPICAL CONCRETE PIPE
EX, EXIST	EXISTING
FF	FINISHED FLOOR
FFE	FINISHED FLOOR ELEVATION
FM	FORCE MAIN
FDC	FIRE DEPARTMENT CONNECTION
FT	FEET
G	NATURAL GAS
GV	GATE VALVE
GR	GRADE
HDFE	HIGH DENSITY POLYETHYLENE
HYD	HYDRANT
IDD	IONA DRAINAGE DISTRICT
INVERT	INVERT
LAE	LAKE ACCESS EASEMENT
LF	LINEAL FEET
LME	LAKE MAINTENANCE EASEMENT
MH	MANHOLE
MES	MITERED END SECTION
MH	MINIMUM
NTS	NOT TO SCALE
NUM/#	NUMBER
OC	NATURAL GAS ON CENTERS
OCEW	ON CENTER EACH WAY
PV	PLUG VALVE
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
POLY, PE	POLYETHYLENE
PAVT	PAVEMENT
P	PROPERTY LINE
PW	POTABLE WATER
PUE	PUBLIC UTILITY EASEMENT
RD	ROAD
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT OF WAY
R/W	RIGHT OF WAY
SAN	SANITARY
SECT	SECTION
SEW	SEWER
TOS	TOP OF SLOPE
TOS	TOP OF BANK
TEL	TELEPHONE
TRANS	TRANSFORMER
TYP	TYPICAL
UE	UTILITY EASEMENT
W	WATER
WM	WATER MAIN
W/O	WITHOUT
WV	WATER VALVE
WH	WALL HYDRANT

**SYMBOLS**

	GATE VALVE / PLUG VALVE		IRRIGATION SERVICE (DOUBLE)
	TEE ASSEMBLY		IRRIGATION SERVICE (SINGLE)
	REDUCER		SEWER SERVICE (DOUBLE)
	BLOW OFF		SEWER SERVICE (SINGLE)
	FIRE HYDRANT		WATER SERVICE (DOUBLE)
	FIRE HYDRANT ASSEMBLY W/ GATE VALVE		WATER SERVICE (SINGLE)
	MITERED END SECTION		HEADWALL
	MANHOLE W/ NUMBER		CULVERT
	DIRECTION OF FLOW		DRAINAGE INLET (SEE PLAN FOR TYPES)
			THROAT INLET

**HATCH PATTERNS**

	WETLAND PRESERVE		RIP RAP / GRAVEL
	UPLAND PRESERVE		NATURAL AREAS
	EXISTING WATER		EARTH IN TYPICAL SECTIONS
	PROPOSED WATER		
	BRICK PAVERS		
	LITTORAL SHELF		
	COMPENSATING LITTORAL PLANTING		

NOTE:  
HATCH PATTERNS ARE FOR ILLUSTRATIVE PURPOSES ONLY. ACTUAL HATCH PATTERNS ON DRAWING MAY VARY IN SCALE & ANGLE

**LINETYPES**

	EXISTING	PROPOSED
LAKE MAINTENANCE EASEMENT	---	---
PUBLIC UTILITY EASEMENT	---	---
DRAINAGE EASEMENT	---	---
CENTER LINE	---	---
WETLAND BOUNDARY	---	---
FORCE MAIN	---	---
SANITARY SEWER	---	---
WATER MAIN	---	---
PERIMETER BERM	---	---
RIGHT OF WAY	---	---
FENCE LINE	---	---
SILT FENCE	---	---
BASIN LINE	---	---
IRRIGATION LINE	---	IRR
STREAM	---	---

NOTE: NOT ALL LINETYPES SHOWN ARE USED FOR EVERY PROJECT.

**GENERAL NOTES:**

ELEVATIONS ARE REFERENCED TO NATIONAL GEODETIC VERTICAL DATUM N.G.V.D. OF 1929.

THE LOCATION OF EXISTING UTILITIES, PAVEMENT, VEGETATION, AND MISCELLANEOUS IMPROVEMENTS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL NOTIFY SUBSISTING STATE ONE CALL OF FLORIDA AT 1-800-432-4770 OR USING THE INTERNET AT WWW.CALL1CALLFLORIDA.COM PRIOR TO ANY EXCAVATION AND WILL KEEP THE LOCATE TICKET ON SITE DURING OPERATIONS.

ANY PROPERTY MONUMENTS WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, THE CONTRACTOR SHOULD NOTIFY THE OWNER/ENGINEER WITHOUT DELAY.

EXISTING FACILITIES SHALL BE RESTORED TO A CONDITION EQUIVALENT TO THAT WHICH EXISTED PRIOR TO COMMENCING CONSTRUCTION, AT NO ADDITIONAL COST TO OWNER.

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION, ROADWAY AND TRAFFIC DESIGN STANDARDS, (LATEST EDITION), CITY OF SANIBEL DEVELOPMENT STANDARDS AND SPECIFICATIONS AND LEE COUNTY UTILITIES REQUIREMENTS.

CONTRACTOR SHALL NOTIFY THE CITY OF SANIBEL DIVISION OF DEVELOPMENT REVIEW A MINIMUM OF 72 HOURS PRIOR TO ALL REQUIRED INSPECTIONS.

CONTRACTOR TO PROVIDE SILT FENCE, STAKED HAY BALES AND OTHER APPROPRIATE MEASURES TO EFFECT THE FILTRATION OF SURFACE WATER FLOWS AND TO PROVIDE EROSION PROTECTION DURING CONSTRUCTION PERIOD UNTIL DISTURBED SOILS HAVE BEEN STABILIZED WITH GRASS OR SUITABLE EROSION PROTECTION TREATMENT.

ALL UNPAVED AREAS DISTURBED DURING CONSTRUCTION SHALL BE SOODED UNLESS NOTED OTHERWISE.

EXISTING OFF-SITE DRAINAGE PATTERNS SHALL BE MAINTAINED DURING CONSTRUCTION.

CONTRACTOR SHALL RETAIN, ON THE WORK SITE, COPIES OF ANY PERMITS NECESSARY FOR CONSTRUCTION.

CONTRACTOR SHALL PROMPTLY REPORT ALL FIELD CHANGES TO THE ENGINEER.

CONTRACTOR SHALL CLEAR ALL EXCAVATION AND FILL AREAS; ACTUAL LIMITS OF CLEARING SHALL BE DETERMINED IN THE FIELD BY OWNER OR ENGINEER.

CONTRACTOR SHALL REMOVE ALL MUCK AND OTHER UNSUITABLE MATERIAL FROM AREAS PRIOR TO PLACEMENT OF FILL OR STRUCTURES. ALL MUCK AND OTHER UNSUITABLE MATERIAL EXCAVATED TO BE REMOVED FROM THE SITE.

SITE GRADES MAY BE ADJUSTED IN FIELD BY ENGINEER.

THE LOCATIONS OF EXISTING UTILITIES AND STORM SEWERS SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM RECORD DRAWINGS AND FIELD INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXACT LOCATION PRIOR TO CONSTRUCTION AND PROVIDE IN WRITING ANY DISCREPANCIES TO THE ENGINEER.

THE CONTRACTOR SHALL ACCURATELY PLOT THE LOCATIONS AND DEPTHS OF ALL IMPROVEMENTS INSTALLED ON A FINAL SET OF RECORDED DRAWINGS WHICH SHALL BE DELIVERED TO THE ENGINEER.

CONTRACTOR IS REQUIRED TO OBTAIN FROM THE ENGINEER AND OWNER WRITTEN APPROVAL FOR ANY DEVIATIONS FROM THE PLANS AND/OR SPECIFICATIONS.

CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC AND USAGE OF THE EXISTING STREETS ADJACENT TO THE PROJECT. ALL TRAFFIC MAINTENANCE CONTROL SHALL BE IN ACCORDANCE WITH THE FLORIDA MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, AND UTILITY OPERATIONS.

CONTRACTOR SHALL SUBMIT TO ENGINEER FOR APPROVAL, TRAFFIC MAINTENANCE PLAN, INCLUDING BIKE PATH.

CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY REQUIRED DEWATERING PERMITS.

CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY REQUIRED TREE REMOVAL PERMITS.

BOX CULVERT TO BE PRECAST PER FOOT STANDARDS

**PAVING, GRADING AND DRAINAGE NOTES:**

THIS SITE CAN BE UTILIZED SAFELY FOR BUILDING PURPOSES WITHOUT UNDUE DANGER FROM FLOODING OR ADVERSE SOIL CONDITIONS.

EXISTING OFF-SITE DRAINAGE PATTERNS SHALL BE MAINTAINED DURING CONSTRUCTION.

CONTRACTOR SHALL NOTIFY THE CITY OF SANIBEL DIVISION OF DEVELOPMENT SERVICES A MINIMUM OF 72 HOURS PRIOR TO ALL REQUIRED INSPECTIONS.

CONTRACTOR SHALL NOTIFY THE OWNER AND CONTACT ALL UTILITY COMPANIES FOR LOCATIONS OF EXISTING UTILITIES IN THE AREA 72 HOURS (MIN) PRIOR TO COMMENCING CONSTRUCTION.

ALL DISTURBED AREAS WITHIN ROW ARE TO BE SOODED.

PLACE 18" OF 500 CONTINUOUS ALONG EDGES OF PAVEMENT OF ALL ROADS AND/OR CURB, LAYING PARALLEL WITH THE ROAD MAINTAINING 1" BELOW FINISHED PAVEMENT GRADE.

CONTRACTOR TO PROVIDE SILT FENCE, STAKED HAY BALES AND OTHER APPROPRIATE MEASURES TO EFFECT THE FILTRATION OF SURFACE WATER FLOWS AND TO PROVIDE EROSION PROTECTION DURING CONSTRUCTION PERIOD UNTIL DISTURBED SOILS HAVE BEEN STABILIZED WITH GRASS OR SUITABLE EROSION PROTECTION TREATMENT.

**SIGNING AND PAVEMENT MARKING NOTES:**

ALL SIGNING AND PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH FOOT STANDARDS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION), FOOT ROADWAY AND TRAFFIC DESIGN STANDARDS (LATEST EDITION), "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION)," AND THE CURRENT CITY OF SANIBEL TRANSPORTATION REQUIREMENTS.

MATCH EXISTING PAVEMENT MARKINGS AT EXISTING ROADS.

MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE FOOT ROADWAY AND TRAFFIC DESIGN STANDARDS (LATEST EDITION).

CONTRACTOR SHALL SET ROADWAY GROUND MOUNT SIGNS AT PROPER DEFLECTION ANGLE TO THE ROADWAY IN ACCORDANCE WITH FOOT INDEX NUMBER 17302.

SEE FOOT INDEX NUMBERS 17348 AND 17352 FOR ADDITIONAL DETAILS.

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REVISIONS	DATE	DESCRIPTION

Clam Bayou-Dinkins Bayou  
Sanibel, Florida

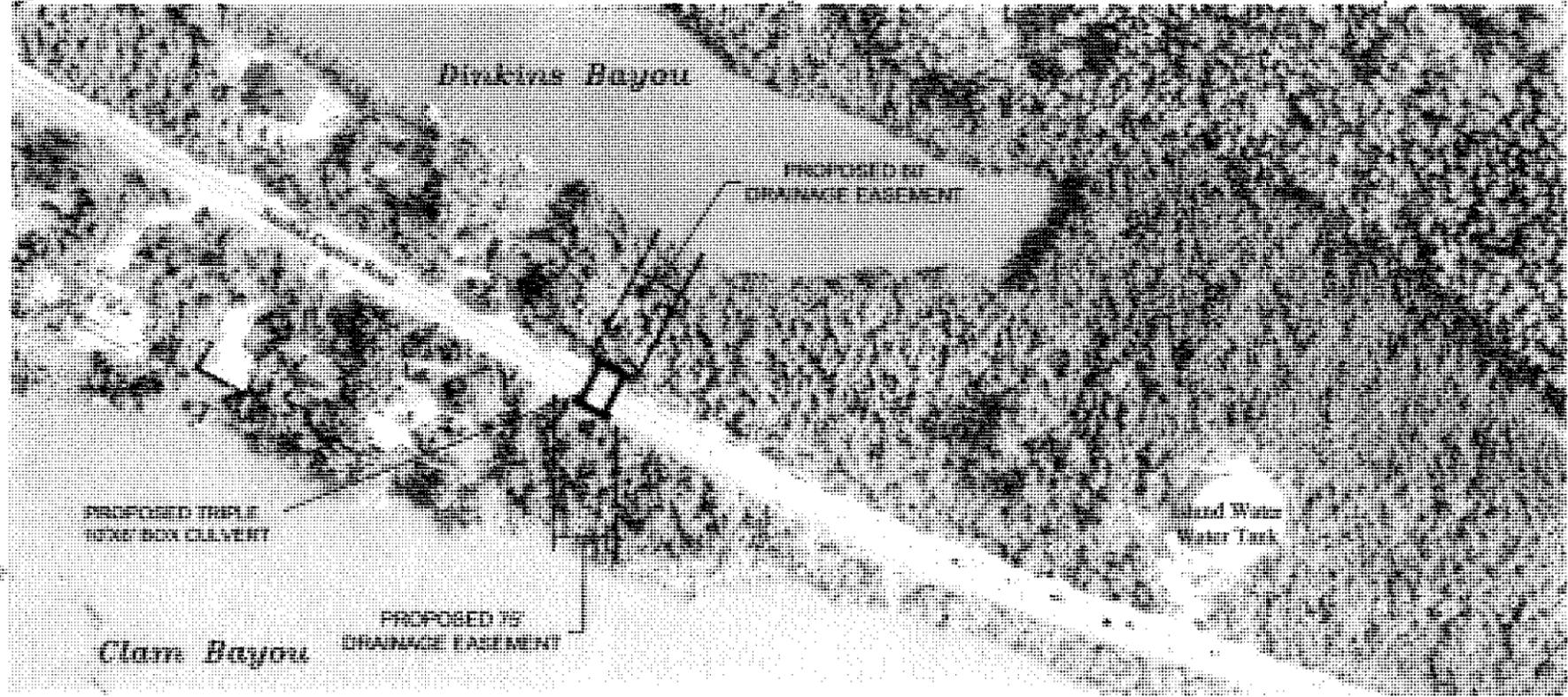
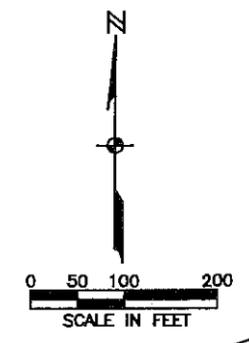
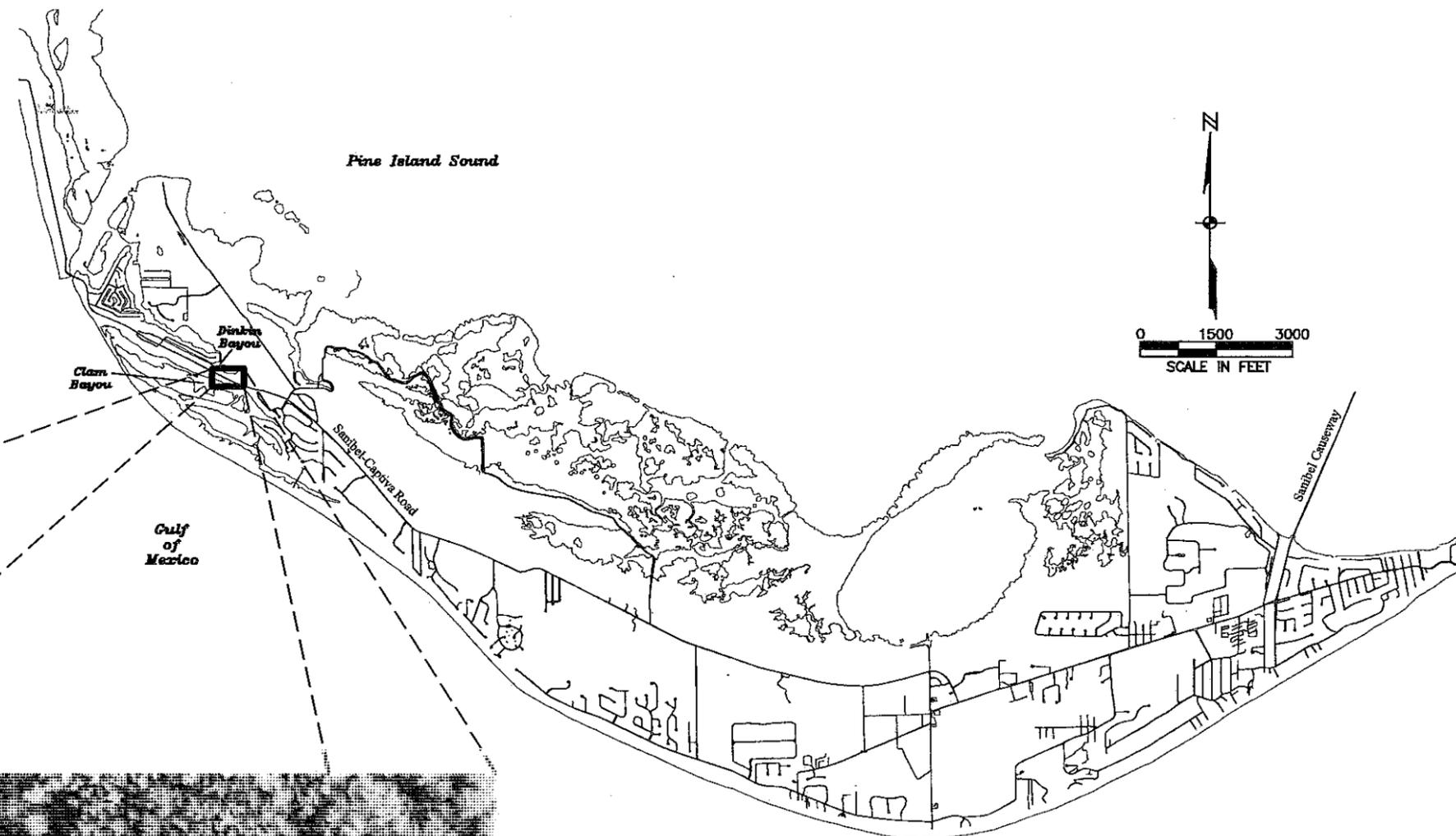


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David V. Johnson, PE  
Lic. No. 57634  
Jul 29 2005

Triple 10' x 6' Box Culvert  
General Notes

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
02/23/04	20044470	12-46-21	As Shown	2



NOTE: Aerial is from Lee Co. Dept. of Photogrametry and is Dated Jan. 2002

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REVISIONS	

Clam Bayou-Dinkins Bayou  
Sanibel, Florida

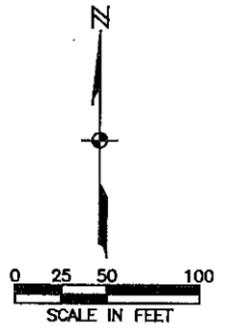
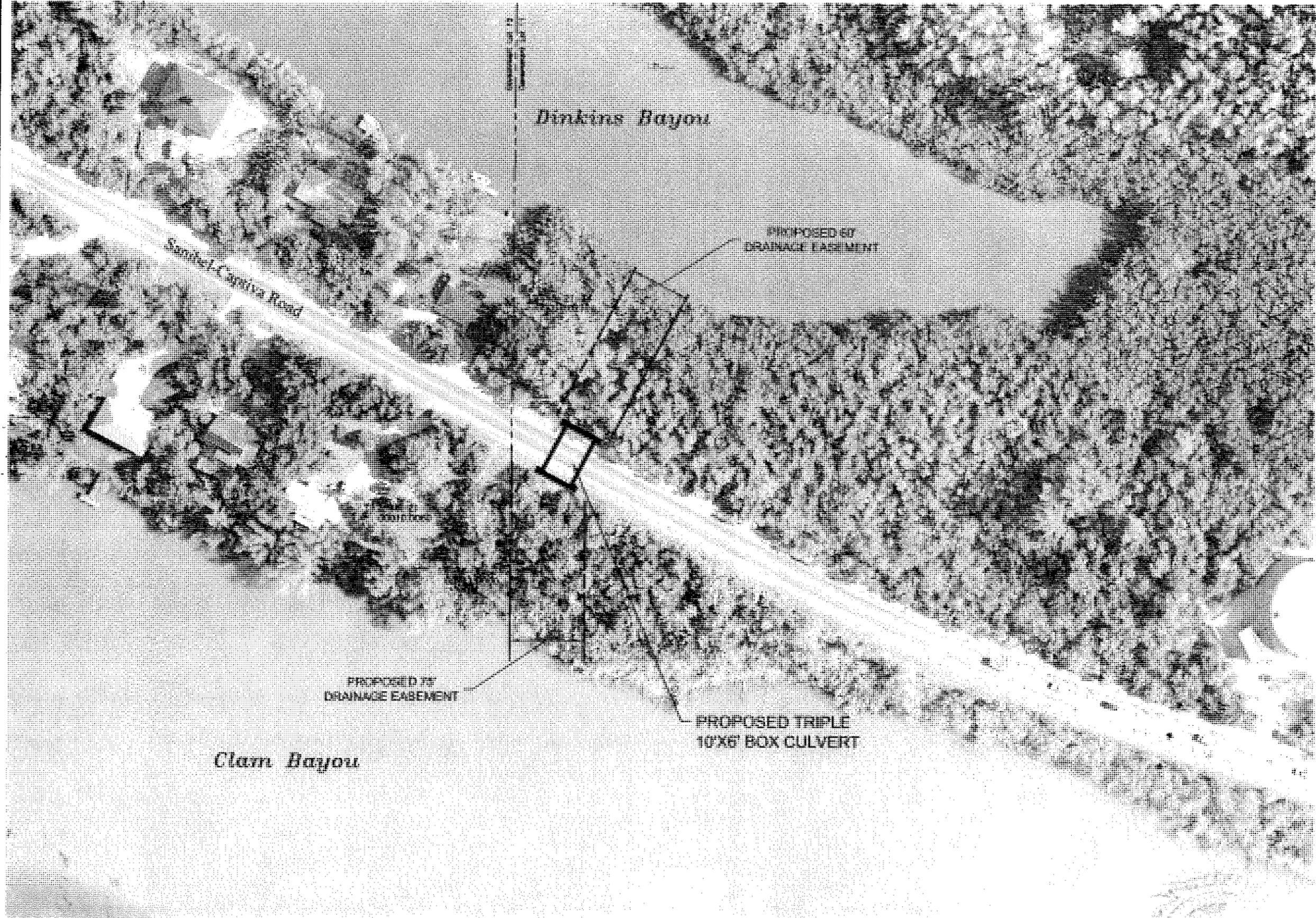
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David V. Williams, PE  
Lic. No. 57634  
**JUL 29 2005**

Triple 10' x 6' Box Culvert  
Location Map

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
02/23/04	20044470	12-46-21	As Shown	3



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NOTE: Aerial is from Lee Co. Dept. of Photogrammetry and is Dated Jan, 2002. Property Lines, easement and Right-of-Way lines are approximate.

REVISIONS	

Clam Bayou-Dinkins Bayou  
Sanibel, Florida

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JUL 29 2005

Triple 10' x 6' Box Culvert  
Aerial Map

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
02/23/04	20044470	12-48-21	As Shown	4

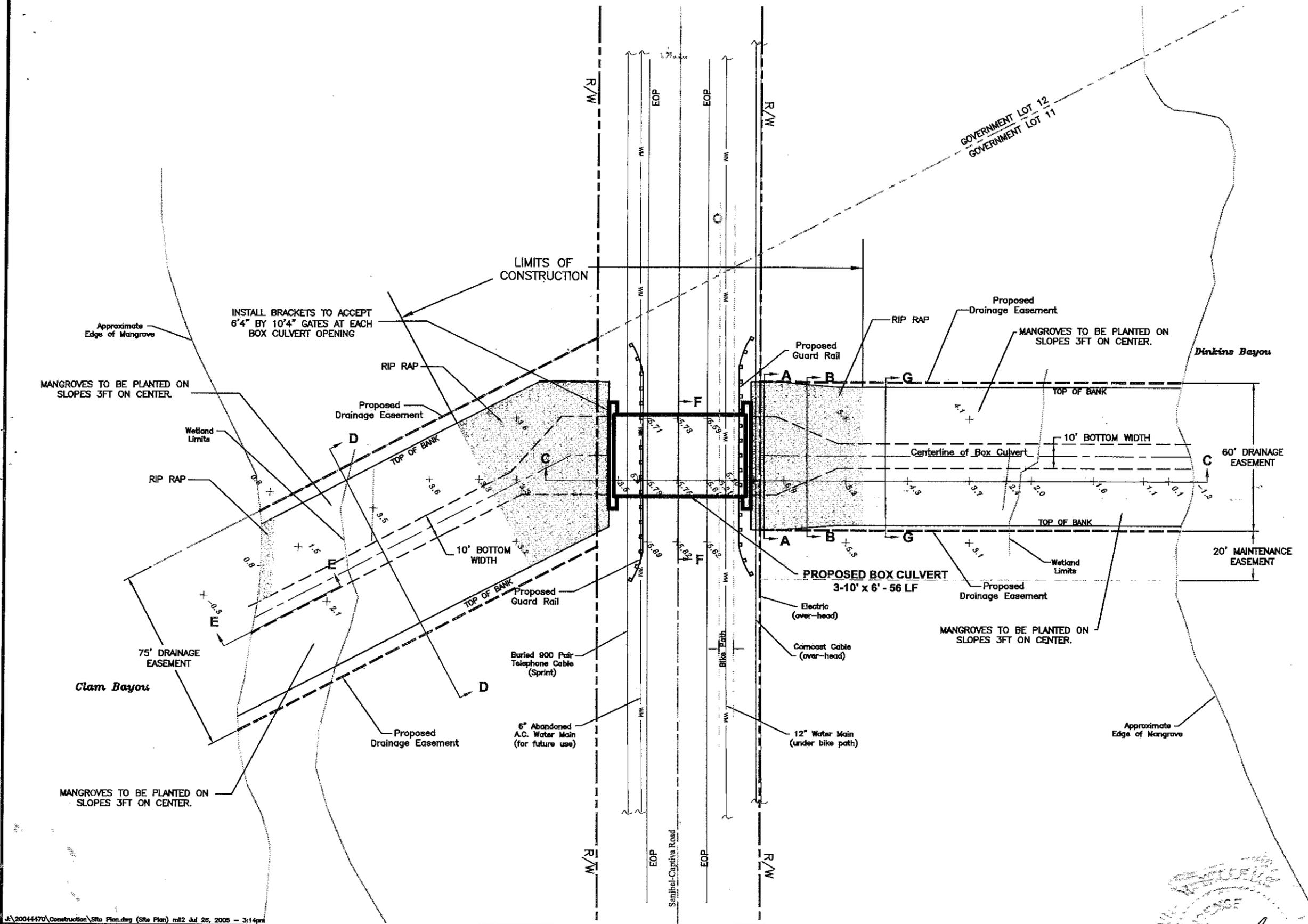


LEGEND

- Guardrail
- Easement
- ROW
- Existing Elevation
- Proposed Elevation

NOTES:

1. See General Notes on Sheet 2.
2. See Typical Sections on Sheet 6.
3. Sawcut existing pavement to clean edge prior to repaving back past all broken edges or otherwise deteriorated pavement.
4. Subbase, Base and Pavement construction to be in accordance with FDOT Standard Specifications for Road and Bridge Construction 2004, for both materials and method of construction. Base material will be Limerock.
5. Guard rails to be constructed in accordance with FDOT Index 400, including upgrading where needed to meet current standards.
6. Contractor will take all measures needed, both ordinary and extraordinary to assure a smooth final road grade after repaving operations.
7. Pavement repair to be 6" of Type S-1 asphaltic concrete base and 1" friction course of Type S-111. Match Existing Grade to Satisfaction of engineer.
8. Limerock base to be minimum LBR 100 and compacted in lifts to 98% of modified proctor value.
9. Road Base and Subbase materials to be compacted and tested in 6" lifts per FDOT Specs.
10. Use Retained Mechanical Joint Fittings to raise watermain to come over box culvert. Use Saddles and anchors to fix watermain to culvert headwall.
11. Contractor to Submit for Approval a Maintenance of Traffic Plan.
12. Existing Bike Path to be barricaded and signed as CLOSED and reconstructed after utility and culvert construction is complete. Reconstruction to be equal or better to original condition with a smooth transition between the existing and new bike path surfaces, and shall be to the satisfaction of the City Engineer.



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REVISIONS	

Clam Bayou-Dinkins Bayou  
Sanibel, Florida

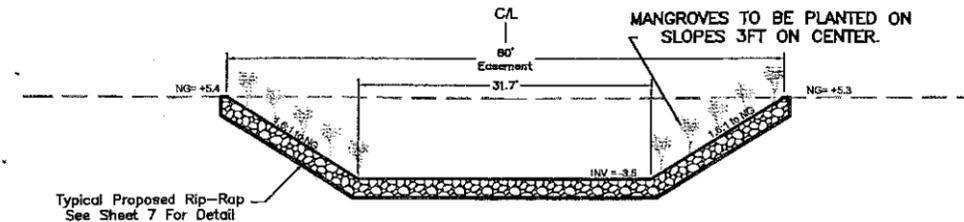


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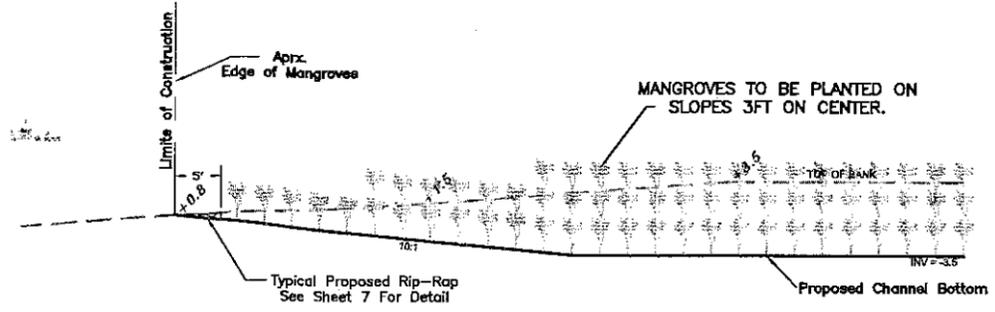
David Williams, PE  
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JUL 29 2005

Triple 10' x 6' Box Culvert  
Site Plan

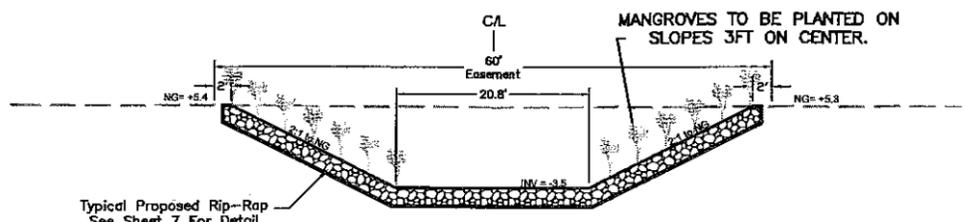
PROJECT NO.	FILE NO.	SCALE	SHEET
20044470	12-46-21	As Shown	5



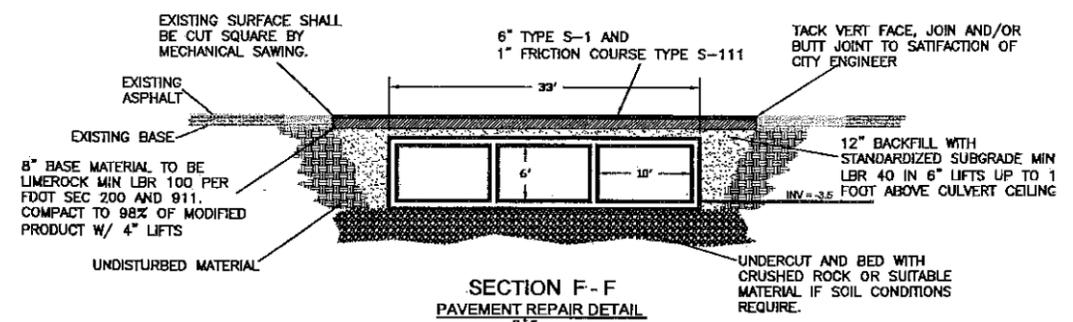
SECTION A-A  
Sta 0+35  
SCALE: 1"=10'



SECTION E-E  
SCALE: 1"=10'

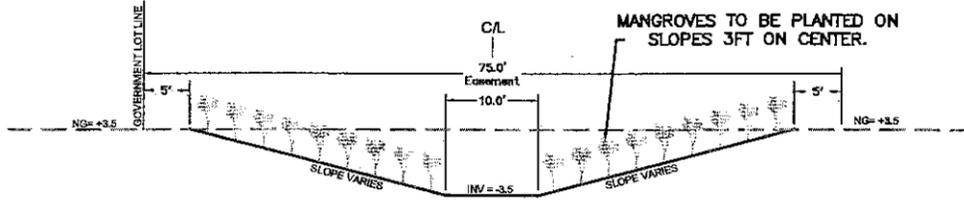


SECTION B-B  
Sta 0+48  
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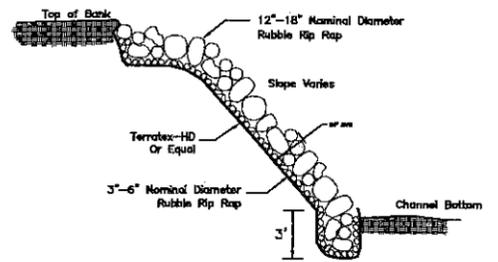


SECTION F-F  
PAVEMENT REPAIR DETAIL  
N.T.S.

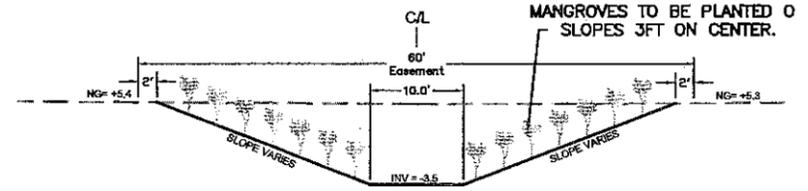
- GENERAL NOTES:
1. THE LIMITS OF ASPHALT (OVERLAY) REPLACEMENT SHALL BE DETERMINED BY CITY OF SANIBEL.
  2. PAVEMENT BASE AND SUB BASE CONSTRUCTION TO MEET REQUIREMENTS OF FDOT STANDARDS FOR ROAD AND BRIDGE CONSTRUCTION 2004 EDITION.



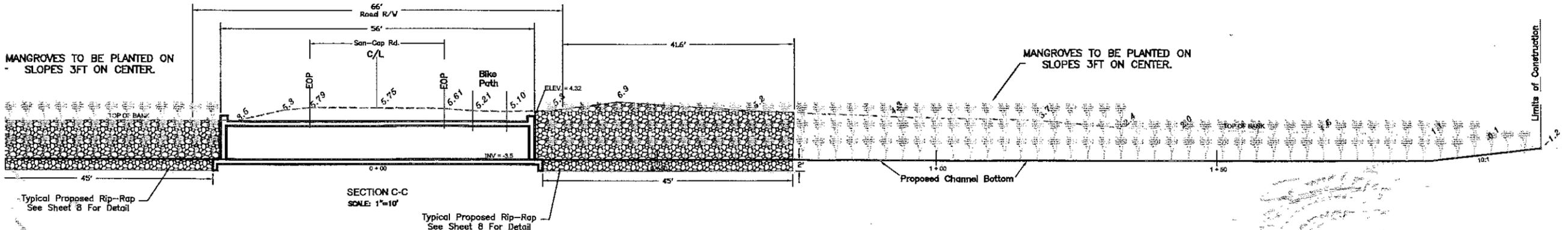
SECTION D-D  
SCALE: 1"=10'



RIP RAP DETAIL  
N.T.S.



SECTION G-G  
Sta 0+75  
SCALE: 1"=10'



SECTION C-C  
SCALE: 1"=10'

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REVISIONS	

Clam Bayou-Dinkins Bayou  
Sanibel, Florida

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JUL 29 2005

Triple 10' x 6' Box Culvert  
Typical Sections

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
02/23/04	20044470	12-46-21	As Shown	6

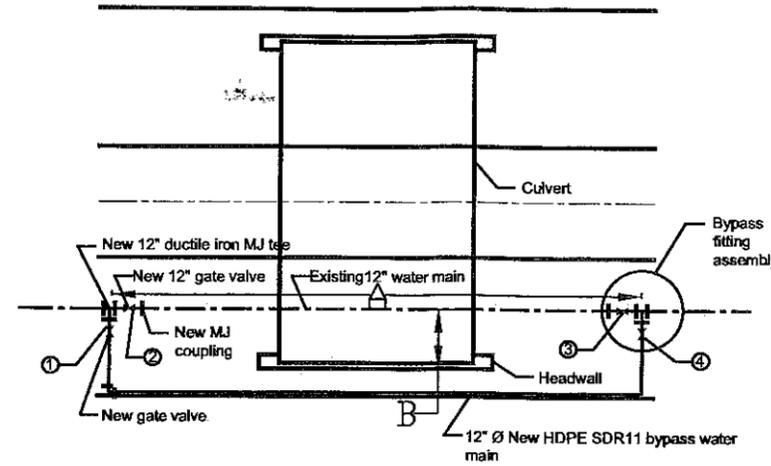
**NOTE: 12" WATER MAIN IS THE ONLY WATER SUPPLY AND FIRE WATER SUPPLY TO CAPTIVA AND NORTHERN SANIBEL. DISRUPTION FOR MORE THAN 8 HOURS DUE TO CONSTRUCTION OR BREAKAGE CAN LEAD TO SERIOUS PROBLEMS.**

**IWA SPECIFICATIONS FOR CLAM / DINKINS BAYOU CULVERT MAIN CROSSING.**

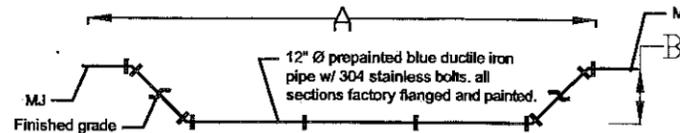
1. ALL METHODS OF CONSTRUCTION, MATERIALS AND INSTALLATION SHALL BE IN CONFORMANCE WITH ISLAND WATER ASSOCIATION INC. "DISTRIBUTION CONSTRUCTION SPECIFICATION" REVISION 11/08/2002 AND THIS SPECIFICATION.
2. ALL NEW PERMANENT PIPE MATERIAL SHALL BE PREPARED BLUE DUCTILE IRON FACTORY FLANGED. SUBMIT SHOP DRAWINGS OF ALL COMPONENTS TO IWA.
3. ALL BOLTS AND NUTS TO BE 316 STAINLESS STEEL. ALL PIPE SUPPORTS TO BE 316 STAINLESS.
4. ALL UNDERGROUND DUCTILE IRON PIPE, FITTINGS AND VALVES SHALL BE POLYETHYLENE WRAPPED PER IWA DISTRIBUTION CONSTRUCTION SPECIFICATION PARAGRAPH 10.
5. THE UNDERGROUND PIPE CONTRACTOR SHALL HAVE A CREW SUPERVISOR ON SITE AT ALL TIMES WORK IS BEING DONE ON DOMESTIC WATER SUPPLY PIPING.
6. JOE SCOFIELD IWA DISTRIBUTION MANAGER OR RICH CALABRESE IWA ENGINEERING MANAGER MUST INSPECT ALL UNDERGROUND DOMESTIC WATER PIPE INSTALLATIONS AND TESTS PRIOR TO BACKFILL.
7. THE ENGINEER OF RECORD (JOHNSON ENGINEERING) SHALL PREPARE DETAILED PIPING DRAWINGS BASED ON THESE SPECIFICATIONS AND 62-555 AND SUBMIT THEM ALONG WITH THE PROPER PERMIT TO THE LEE COUNTY PUBLIC HEALTH UNIT. THE ENGINEER SHALL BE RESPONSIBLE FOR ALL SITE INSPECTIONS AND ASBUILT DRAWINGS AS REQUIRED BY THE PERMITS AND THE FLORIDA LAWS.

**IWA WATER MAIN REPLACEMENT PROCEDURE FOR CLAM / DINKINS BAYOU CROSSING**

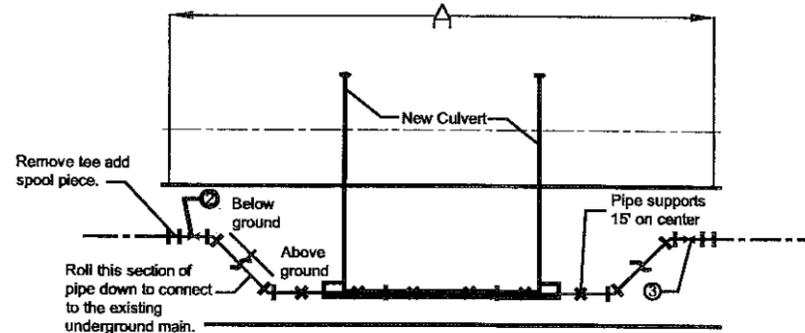
1. DETERMINE DIMENSION "A" AND "B" (FIG. 1) BASED ON CULVERT SIZE AND REQUIRED SET BACK FOR CONSTRUCTION CLEARANCE.
2. PREASSEMBLE TWO BYPASS FITTING ASSEMBLIES. THE VALVES 1 & 4 CONNECTING TO THE BYPASS SHOULD BE CLOSED AND CAPPED.
3. CONTACT IWA TO CLOSE EXISTING INLINE VALVES TO ISOLATE 12" WATER MAIN. **THE WATER CANNOT BE SHUT OFF FOR MORE THAN 8 HOURS AT A TIME WITH A MINIMUM OF 2 DAYS BETWEEN SHUT DOWNS.** TWO DAYS PRIOR TO SHUT DOWN THE CONTRACTOR MUST CALL IWA ISSUE "BOIL WATER NOTICES" TO THE THOSE MEMBERS THAT WILL BE WITHOUT WATER DUE TO SHUTDOWN. WITH THE BYPASS FITTING HOLES OPEN AND THE EXISTING MAIN EXPOSED, IWA WILL SHUT THE MAIN AND THE CONTRACTOR WILL LOWER THE BYPASS FITTING ASSEMBLIES IN HOLE, CHLORINE SWAB, FLUSH AND INSTALL IN EXISTING 12" MAIN. ONCE INSTALLED IN MAIN MAKE SURE VALVE ATTACHED TO EXISTING MAIN 2 & 3 IS OPEN AND VALVE FOR BYPASS IS CLOSED AND CAPPED 1 & 4. THIS WHOLE PROCEDURE HAS TO BE COMPLETED WITHIN 8 HRS.
4. AFTER ITEM 4 IS COMPLETE IWA WILL OPEN EXISTING INLINE SHUT OFF VALVES. THE NEW BYPASS FITTING ASSEMBLY IS TO BE MONITORED FOR LEAKS FOR AT LEAST 1/2 HOUR AT A LINE PRESSURE OF 75PSI. ONCE TEST IS COMPLETE CONTRACTOR IS TO SCHEDULE DEPARTMENT OF HEALTH SAMPLE TESTS TO CLEAR EXISTING MAIN WITH BYPASS FITTING ASSEMBLIES FOR SERVICE.
5. WITH THE EXISTING MAIN AND BY-PASS FITTINGS IN SERVICE, INSTALL THE TEMPORARY BY-PASS MAIN. THIS PIPE IS TO BE HDPE WITH FUSED MJ ADAPTERS. IT IS TO BE DIRECTIONALLY BORED. CONTRACTOR IS TO SUBMIT SHOP DRAWINGS AND DESIGN OF BYPASS LINE TO IWA PRIOR TO ORDERING MATERIALS. UPON APPROVAL OF BYPASS DESIGN BY IWA, CONTRACTOR WILL INSTALL AND SECURE BYPASS LINE WITHOUT ATTACHING TO UNDERGROUND BYPASS FITTINGS.
6. WITH BY-PASS PIPE INSTALLED IN GROUND REMOVE BYPASS FITTING VALVE END CAP AND CONNECT SOUTH END OF PIPE TO BY-PASS VALVE 1. SLOWLY OPEN SOUTH END BY-PASS 1 VALVE AND FLUSH BYPASS LINE. IWA MUST WITNESS TEST AND DETERMINE FLUSH TIME.
7. CAP NORTH END OF BY-PASS AND PERFORM PRESSURE TEST PER IWA SPECIFICATIONS.
8. AFTER PRESSURE TEST IS COMPLETE CHLORINATE BYPASS AND FLUSH PER IWA SPECIFICATIONS. CONTACT HEALTH DEPARTMENT FOR WATER SAMPLE TESTS OF BYPASS LINE.
9. UPON SUCCESSFUL COMPLETION OF 2 CONSECUTIVE WATER SAMPLES, CONNECT NORTH SECTION OF BYPASS PIPE TO NORTH BYPASS FITTING ASSEMBLY AND OPEN NORTH BYPASS VALVE 4. SLOWLY FULLY OPEN SOUTH BYPASS VALVE 1. SLOWLY CLOSE SOUTH EXISTING MAIN VALVE 2. VALVE 3 CAN NOW BE CLOSED LEAVING THE MAIN BETWEEN VALVES 2 & 3 ISOLATED AND THE BYPASS IS IN FULL OPERATION AND THE EXISTING MAIN CAN BE REMOVED BETWEEN VALVES 2 & 3 AFTER APPROPRIATE THRUSTING AND RESTRAINT.
10. FIGURE 2 SHOWS THE PREPARED DUCTILE IRON CLASS 51 PIPE SECTIONS FOR THE NEW ABOVE GROUND PIPE.
11. AFTER WORK IS COMPLETED ON THE NORTH SIDE OF THE CULVERT, THE REPLACEMENT PIPE CAN BE INSTALLED AS SHOWN IN FIGURE 3. THE END FLANGES CAN BE ASSEMBLED TO THEIR RESPECTIVE VALVES 2 AND 3.
12. WHEN CONSTRUCTION IS COMPLETE FLUSH, PRESSURE TEST, CHLORINATE AND SAMPLE NEW DUCTILE IRON ABOVE GROUND PIPING.
13. DISCONNECT UNDERGROUND BYPASS TEES AND INSERT SPOOL PIECES. CONDUCT DEPARTMENT OF HEALTH SAMPLES.



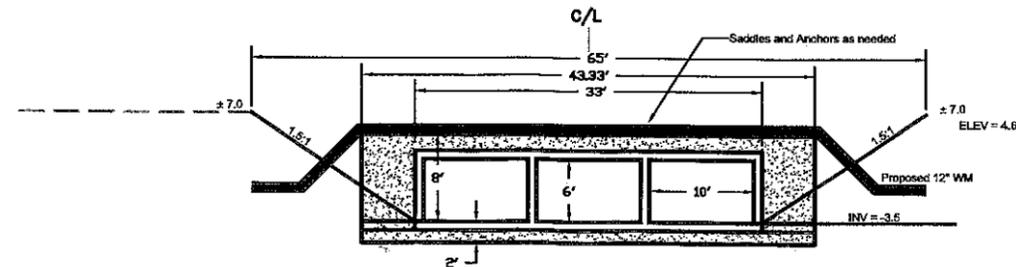
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N.T.S.



N.T.S.



SECTION H-H  
SCALE: 1"=10'

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REVISIONS	

Clam Bayou-Dinkins Bayou  
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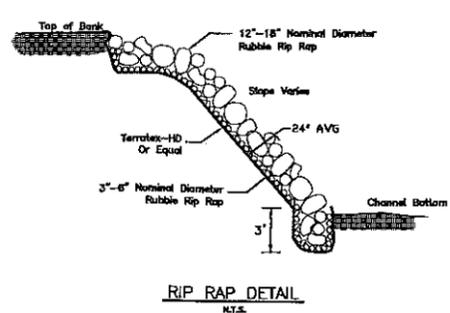
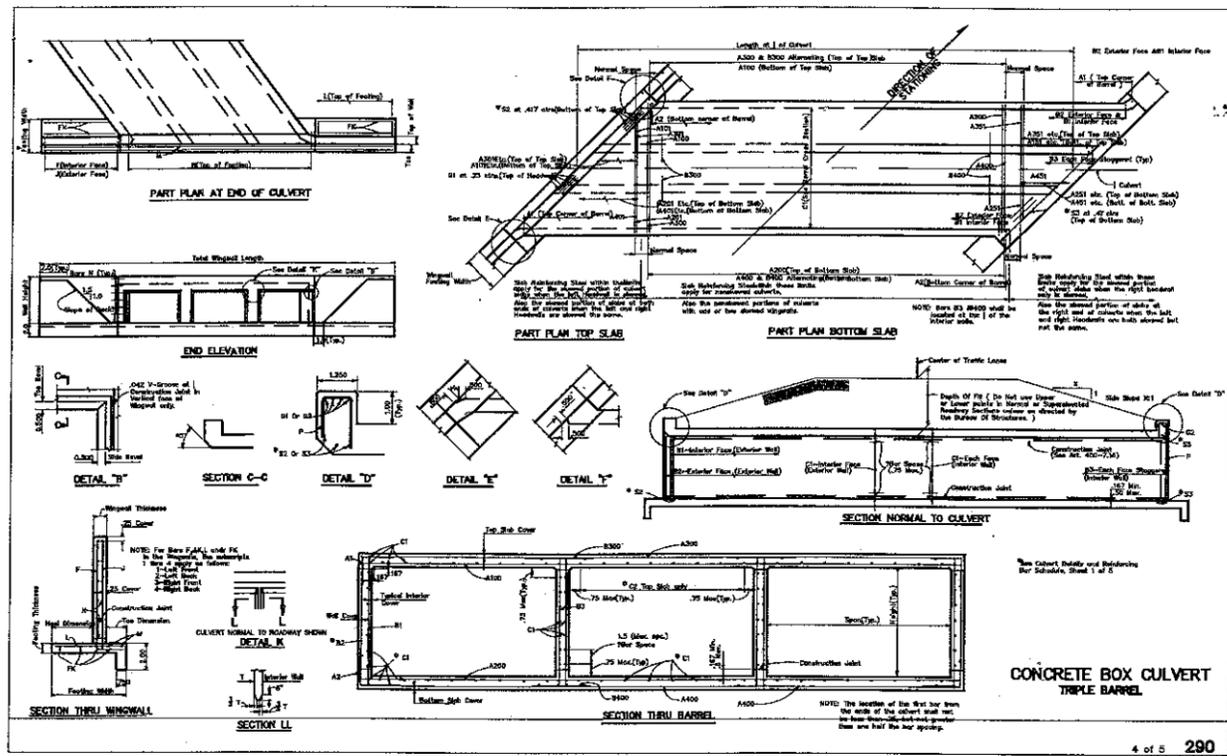
JUL 29 2005

07/25/05

Installation Procedures

PROJECT NO.	FILE NO.	SCALE	SHEET
20044470	12-48-21	As Shown	7





4/26/04 FLORIDA DEPARTMENT OF TRANSPORTATION 17:59:23  
 BOX CULVERT AND WINGWALL DESIGN E.N.G.L.I.S.H D.U.T.P.U.T. VERSION NO. 2.43  
 PROJECT NUMBER: 20044470 LOCATION DESCRIPTION: SAN CAP RD AT CLAM BAYOU ENVIRONMENT: EXTREMELY AGGRESSIVE, USE CLASS IV CONCRETE

**MATERIAL PROPERTIES**

STEEL YIELD STRENGTH = 60 KSI  
 CONCRETE 28 DAY STRENGTH = 5000 PSI  
 DESIGN F'C = 5000 PSI

**CONCRETE COVER FOR REINFORCING BARS**

BARREL EXT. COVER TOP SL. = 3 IN  
 BARREL INT. COVER ALL LOC. = 3 IN  
 WINGWALL ALL LOC. = 3 IN

**PROPERTIES OF ELEMENTS**

BARREL: NO. OF BARRELS(S) = 3; SPAN = 10 FT 0 IN; LENGTH AT BOX CENTER LINE = 56 FT 0 IN; HEIGHT = 6 FT 0 IN; DEPTH OF FILL = 3 FT 0 IN; LEFT SIDE SKEW ANGLE = 0 DEGREE; RIGHT SIDE SKEW ANGLE = 0 DEGREE; THOSS. TOP SL. = 10 IN; BOTTOM SL. = 10 IN; INT. WALL = 10 IN; EXT. WALL = 10 IN

WINGWALL: NO. OF WINGWALL(S) BOTH LEFT AND RIGHT SIDES; TOP LEVEL = 6 IN; WALL HEIGHT = 7 FT 10 IN; TIE DIMENSION = 1 FT 4 IN; TIE PRESSURE = 1044. psf; SIDE BEVEL = 5 FT 6 IN; FOOTING WIDTH = 3 FT 10 IN; WALL THICKNESS = 8 IN; HEEL DIMENSION = 3 FT 8 IN; FOOTING THICKNESS = 8 IN

SKEW ANGLE: LEFT FRONT = 0 DEGREE; RIGHT FRONT = 0 DEGREE; LEFT BACK = 180 DEGREE; RIGHT BACK = 180 DEGREE; LENGTH WALL = 1.183 C.Y.; FRONT TIP HEIGHT = 7 FT 10 IN; FOOTING TOTAL = .859 C.Y.; TOTAL = 2.042 C.Y.

TOTAL WINGWALL LENGTH WITH BARREL WIDTH: LEFT = 49 FT 4 IN; RIGHT = 49 FT 4 IN

**CONCRETE QUANTITIES**

BARREL: POUR 1 (BOTTOM SLAB) = 1.049 C.Y./FT.; POUR 2 (WALLS) = .700 C.Y./FT.; POUR 3 (TOP SLAB) = 1.052 C.Y./FT.; TOTAL (EXCLUDE HEADWALL) = 2.801 C.Y./FT.

WINGWALL: POUR 1 (FOOTING) = 8.100 C.Y.; POUR 2 (WALLS) = 4.732 C.Y.; TOTAL = 12.833 C.Y.

**TOTAL CONCRETE QUANTITIES**

BARREL = 159.967 C.Y.; WINGWALL = 12.833 C.Y.; TOTAL = 172.800 C.Y.

SKewed WINGWALL LENGTH MEASURED ON CENTER LINE FROM CONSTRUCTION JOINT  
 DISTANCE FROM OUTSIDE EDGE OF BARREL EXTERIOR WALL TO CONSTRUCTION JOINT ON CENTER LINE OF WINGWALL  
 INCLUDE TIE AND KEY AT BARREL ENDS  
 ENVIRONMENT: EXTREMELY AGGRESSIVE, USE CLASS IV CONCRETE

**STEEL QUANTITIES AND BAR SCHEDULE**

LOCATION	BAR	NUMBER	SETS	SIZE	SPACING (FT-10)	TYPE	LENGTH (FT-10)	QUANTITY (LBS)	B LENGTH (FT-10)	C LENGTH (FT-10)	D LENGTH (FT-10)
SLAB	A100	300	5		0-4 1/2	1	32-10	10274			
SLAB	A300	90	8		1-3	1	32-10	7890			
SLAB	B300	0	8		1-3	1	6-4	0			
CORNER BAR	A1	360	8		0-7 1/2	10	9-8	9292	4-10	4-10	
EXTERIOR WALL (INSIDE)	B1	168	4		0-8	1	7-2	604			
EXTERIOR WALL (OUTSIDE)	B2	180	5		0-7 1/2	1	5-2	970			
INTERIOR WALL	B3	336	5		0-8	1	7-2	2516			
LONGITUDINAL	C1	212 (2)	4		1-6	1	28-8	4060			
HEADWALL BOTH SIDES	G1	8 (1)	5		SEE INDEX	1	33-0	275			
HEADWALL BOTH SIDES	P	68	4		1-0	11	3-4	151	0-11	1-4	1-1

PER FOOT BARREL STEEL QUANTITY: 638. LBS./FOOT  
 TOTAL BARREL STEEL QUANTITY: 36228 LBS.

**WINGWALL QUANTITIES** E.N.G.L.I.S.H D.U.T.P.U.T.

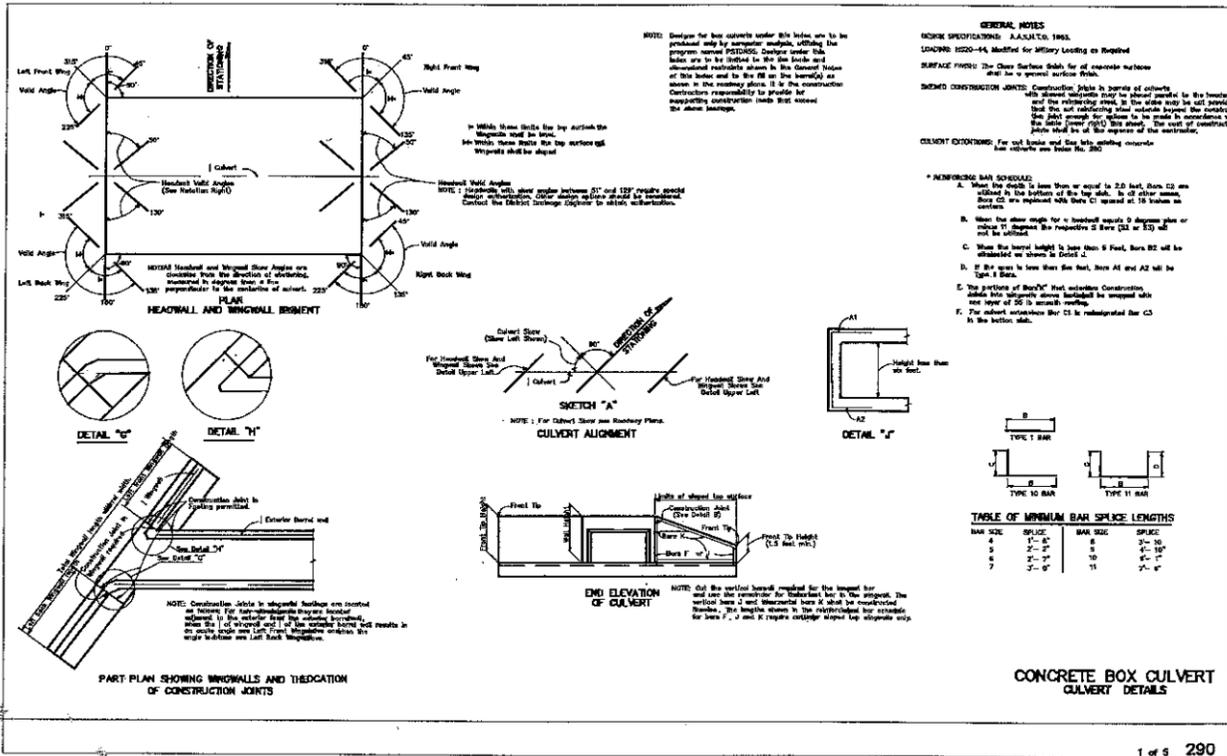
LOCATION	BAR	NUMBER	SETS	SIZE	SPACING (FT-10)	TYPE	LENGTH (FT-10)	WEIGHT (LBS)	B LENGTH (FT-10)	C LENGTH (FT-10)
STEM	F	16	5		1-2 1/2	10	9-7	160	1-7	0-0
STEM	J	16	4		1-2 1/2	1	0-0	84		
STEM	K	40	4		1-6	1	4-6	180		
FOOTING	KF	16	4		SEE INDEX	1	4-6	48		
FOOTING	L	20	4		1-2 1/2	1	4-8	64		
FOOTING LEFT SIDE	M1	2 (1)	4		SEE INDEX	1	42-10	57		
FOOTING RIGHT SIDE	M2	2 (1)	4		SEE INDEX	1	42-10	57		
STEM TO BARREL JOINTS	N	32	4		1-0	10	6-0	288	3-0	3-0
FOOTING SPILLWAY	R	66	4		1-0	1	2-7	114		

PER FOOT WINGWALL STEEL QUANTITY: 11. LBS./FOOT  
 TOTAL WINGWALL STEEL QUANTITY: 992 LBS.

LENGTH IS THE SUM OF BAR LENGTH AT BEGINNING/TOP AND ENDING/BOTTOM OF WINGWALL. NUMBER OF BAR IS THE AMOUNT REQUIRED FOR THIS SUPPLY OF LENGTH B AND C LENGTH IS FOR THE FIRST BAR OF WINGWALL CLOSE TO THE JOINT OF WINGWALL AND BARREL.  
 FOR SKEWED WINGS BEND BARS N TO ACCOMMODATE SKEW.  
 PROVIDE FOR 3 FT. OF BAR IN THE WINGWALL AND HEADWALL.

**TOTAL STEEL QUANTITIES**

BARREL: 36228 LBS.  
 WINGWALL: 992 LBS.  
 TOTAL: 37220 LBS.



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**REVISIONS**

NO.	DESCRIPTION

Clam Bayou-Dinkins Bayou  
 Sanibel, Lee County, Florida

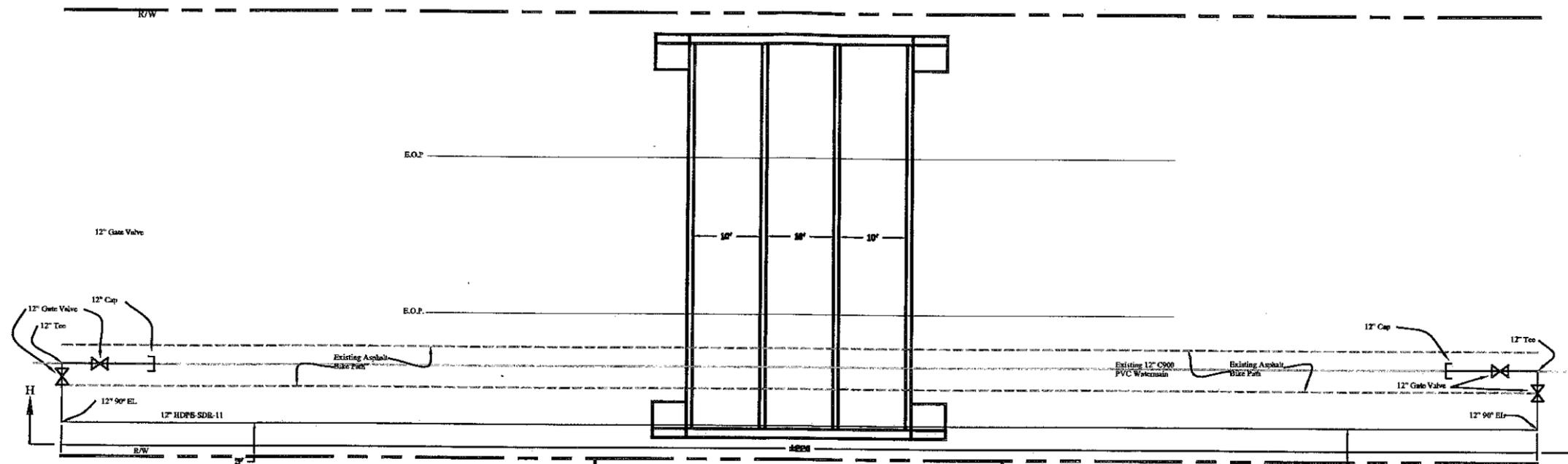


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 JUL 29 2005

Triple 10' x 6' Box Culvert  
 Box Culvert Details

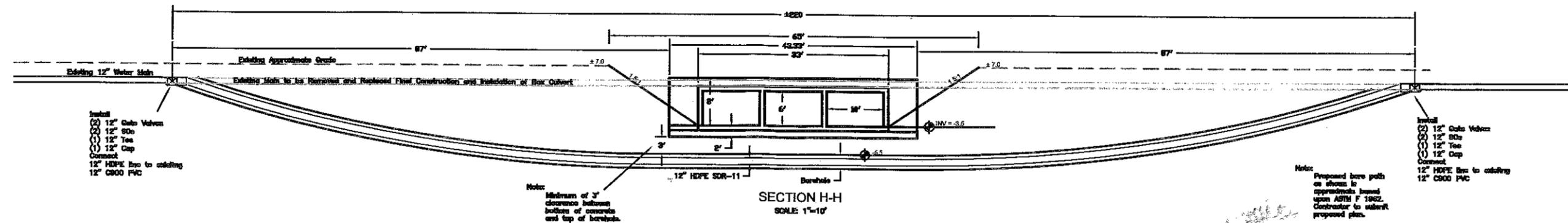
PROJECT NO.	FILE NO.	SCALE	SHEET
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PLAN VIEW DIRECTIONAL DRILL  
SCALE 1"=10'

HORIZONTAL DIRECTIONAL DRILLING

1. CONTRACTOR TO SUBMIT PROPOSED DIRECTION BORE PATH TO ENGINEER FOR ENGINEERS APPROVAL.
2. DIRECTIONAL DRILLING CONTRACTOR SHALL HAVE A MINIMUM OF FOUR YEARS EXPERIENCE WITH SIMILAR CONSTRUCTION INCLUDING PIPELINES OF THE SAME OR LARGER DIAMETER AND THE SAME OR GREATER LENGTHS. THE CONTRACTOR SHALL ALSO HAVE ASUCCESSFULLY COMPLETED A MINIMUM OF FIVE (5) SIMILAR PROJECTS OF THE SAME OR LARGER DIAMETER AND OF EQUAL OR GREATER LENGTHS.
3. ALL DIRECTIONAL DRILL WORK SPECIFIED HEREIN SHALL CONFORM TO OR EXCEED THE APPLICABLE REQUIREMENTS OF ASTM F 1962 (LATEST EDITION). THIS INCLUDES PLANNING, DESIGN, AND EXECUTION OF THE DIRECTIONAL DRILL.



SECTION H-H  
SCALE 1"=10'

- Install
- (2) 12" Gate Valves
  - (2) 12" Sds
  - (1) 12" Tee
  - (1) 12" Cap
- Connect  
12" HDPE line to existing  
12" C900 PVC

- Install
- (2) 12" Gate Valves
  - (2) 12" Sds
  - (1) 12" Tee
  - (1) 12" Cap
- Connect  
12" HDPE line to existing  
12" C900 PVC

Note:  
Proposed bore path  
as shown is  
approximate based  
upon ASTM F 1962.  
Contractor to submit  
proposed plan.

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REVISIONS	DATE	DESCRIPTION

Clam Bayou-Dinkins Bayou  
Sanibel, Florida

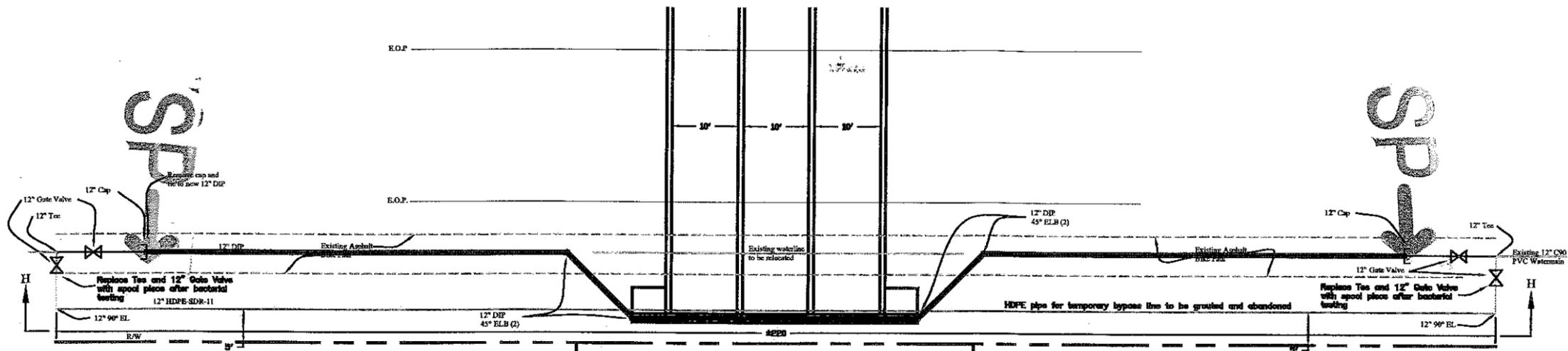


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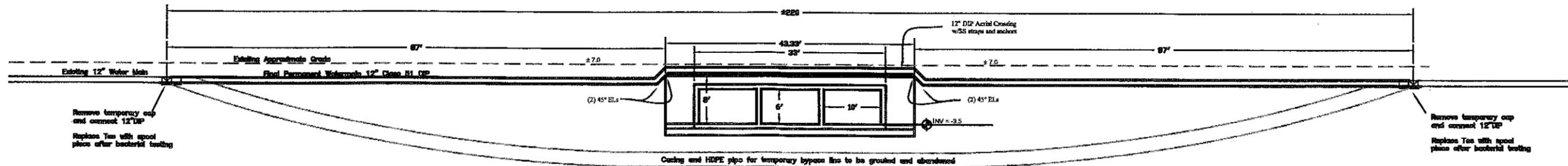
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JUL 29 2005

Typical Sections For  
Temporary Bypass Line

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
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PLAN VIEW FINAL PERMANENT CONNECTION  
SCALE: 1"=10'



SECTION H-H FINAL PERMANENT CONNECTION  
SCALE: 1"=10'

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Sanibel, Florida

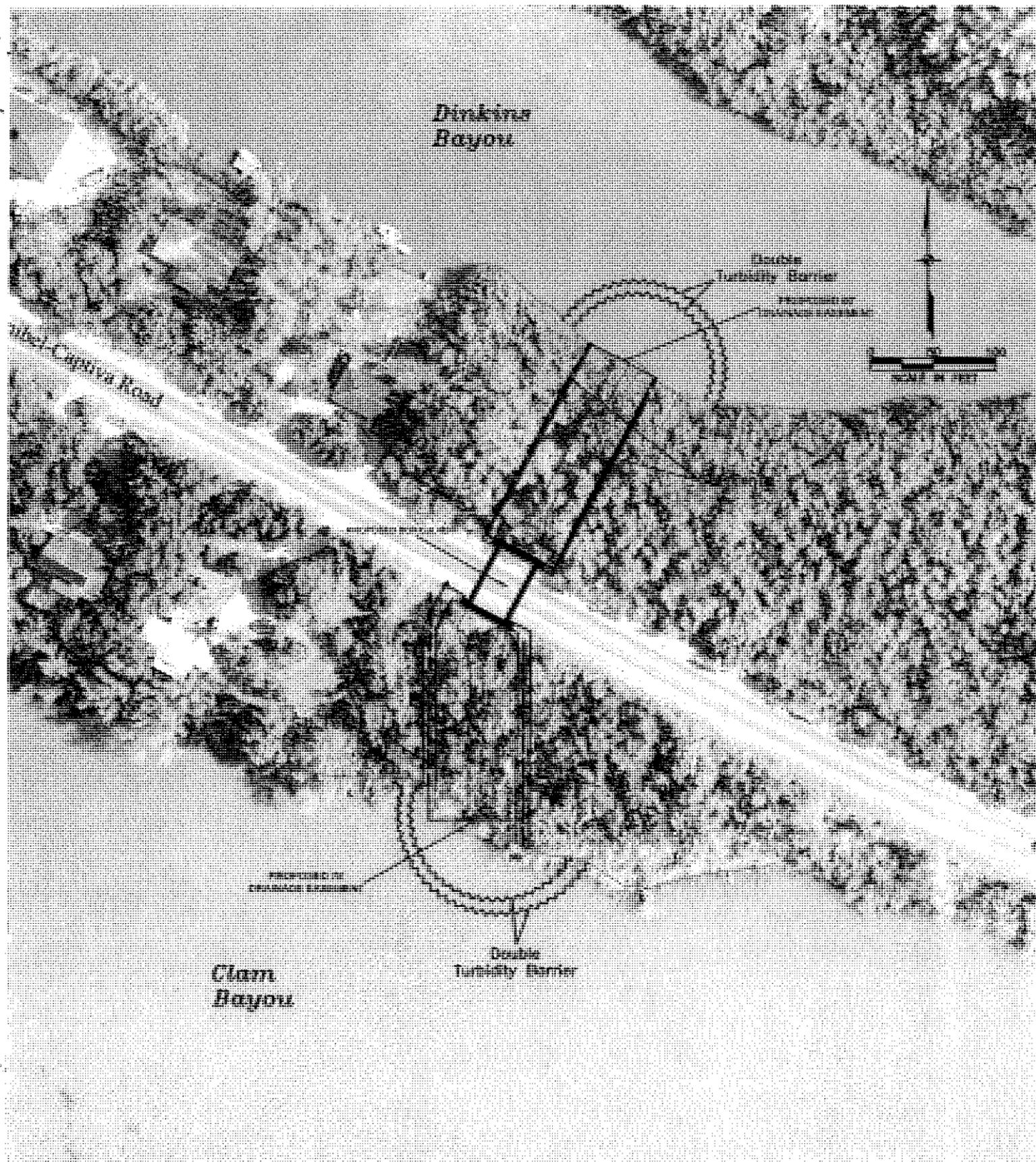
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114, Inc. #27934  
*[Signature]*  
JUL 29 2005

Typical Sections For  
Final Permanent Connection

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
07/25/05	20044470	12-48-21	As Shown	11



NOTE: Aerial is from Lee Co. Dept. of Photogrammetry and is Dated Jan. 2002

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REVISIONS	

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JUL 29 2005

Triple 10' x 6' Box Culvert  
Erosion Controls

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
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