





### LOCATION PLAN

SCALE: N T S

**GENERAL SANTOS CITY WATER DISTRICT**  
 E. FERNANDEZ STREET, BRGY. LAGA, GEN. SANTOS CITY  
 ENGINEERING & CONSTRUCTION DEPARTMENT  
 PLANNING AND DESIGN DIVISION  
 TEL. NO.: (083) 552 - 3824

PROJECT TITLE / LOCATION: <b>INSTALLATION OF 300mmØ STEEL TRANSMISSION PIPELINES AND OTHER APPURTENANCES</b> NAPAL ROAD, BRGY. SAN ISIDRO, GEN. SANTOS CITY		CHECKED BY: <i>MANAGER A - PDD</i>	REVIEWED BY: <i>MANAGER A - ECD</i>	APPROVED BY: <i>GENERAL MANAGER</i>	CONTENT: <b>AS SHOWN</b>	SHEET NO.: <b>2</b>
		ENGR. <b>MARTIN G. GABALES</b>	ENGR. <b>ROGELIO A. BESANA, JR.</b>	ENGR. <b>ARN B. GELLANGARIN</b>	DRAWN: <b>ESA</b>	REVISION:
					CHECKED: <b>MGG</b>	DATE: <b>01/28/2021</b>



**GENERAL SANTOS CITY WATER DISTRICT**  
 E. FERNANDEZ STREET, BRGY. LAGA, GEN. SANTOS CITY  
 ENGINEERING & CONSTRUCTION DEPARTMENT  
 PLANNING AND DESIGN DIVISION  
 TEL. NO.: (083) 552 - 3824

**INSTALLATION OF 300MMØ STEEL TRANSMISSION PIPELINES AND OTHER APPURTENANCES**

ENGR. MICHAEL S. GABALES  
 MANAGER A - PDD

ENGR. ROGELIO A. BESANA, JR.  
 MANAGER A - ECD

ENGR. ARN B. GELLANGARIN  
 GENERAL MANAGER

DRAWN: ESA  
 CHECKED: MGG

REVISION:  
 DATE: 01/28/2021

PROJECT TITLE / LOCATION:

CHECKED BY:

REVIEWED BY:

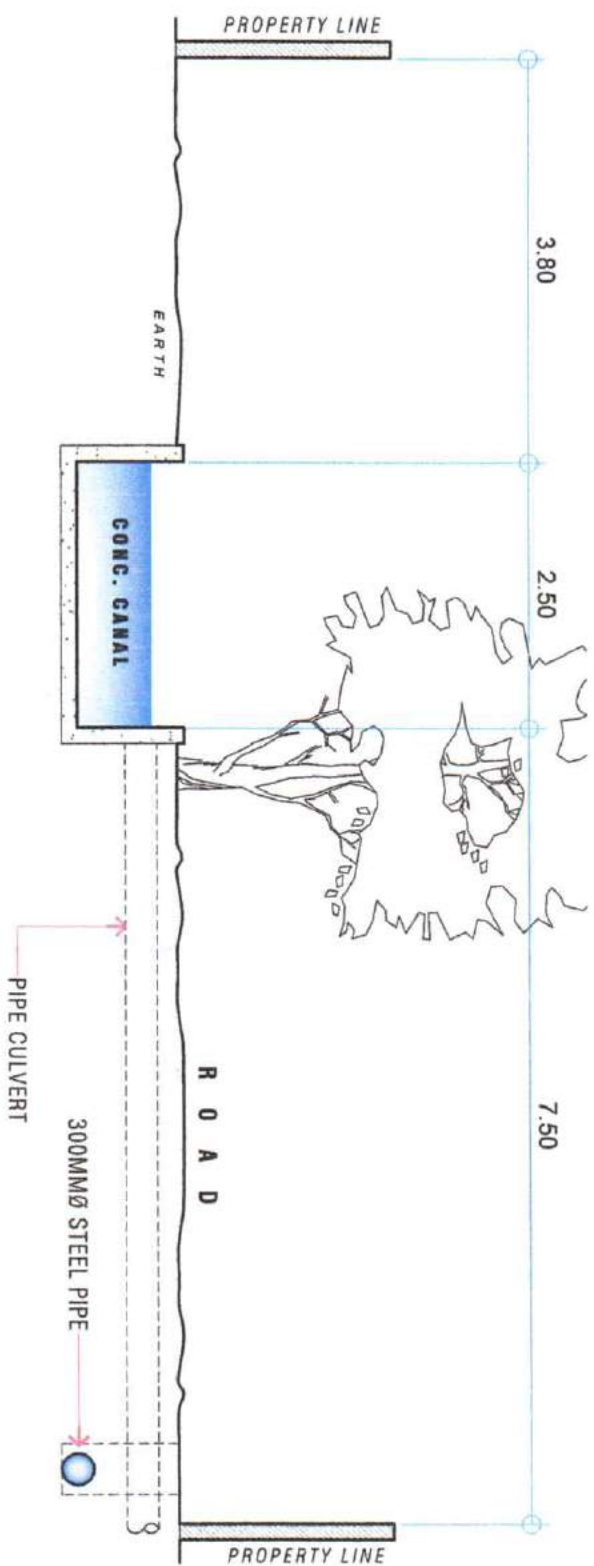
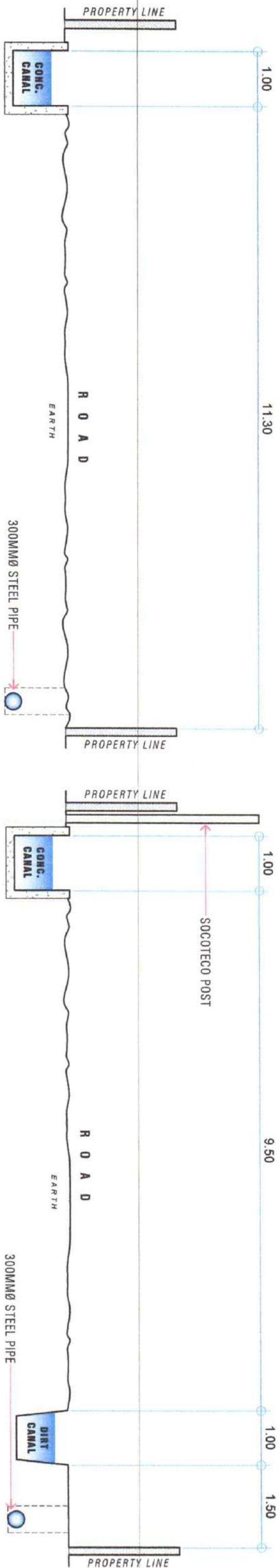
APPROVED BY:

CONTENT:

SHEET NO.:

**AS SHOWN**

**3**



PROJECT TITLE / LOCATION:  
**INSTALLATION OF 300mmØ STEEL TRANSMISSION PIPELINES AND OTHER APPURTENANCES**  
 NAPAL ROAD, BRGY. SAN ISIDRO, GEN. SANTOS CITY

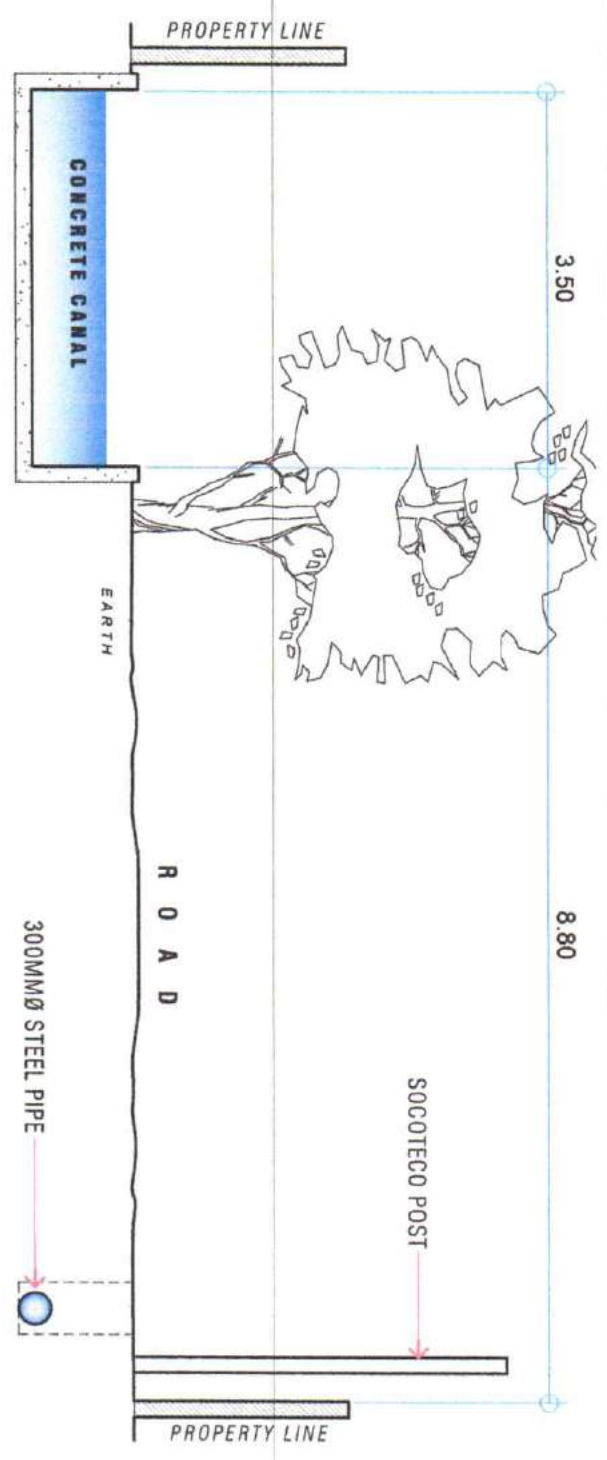
CHECKED BY:  
  
 ENGR. MICHAEL S. GABALES  
 MANAGER A - PDD

REVIEWED BY:  
  
 ENGR. ROGELIO A. BESANA, JR.  
 MANAGER A - ECD

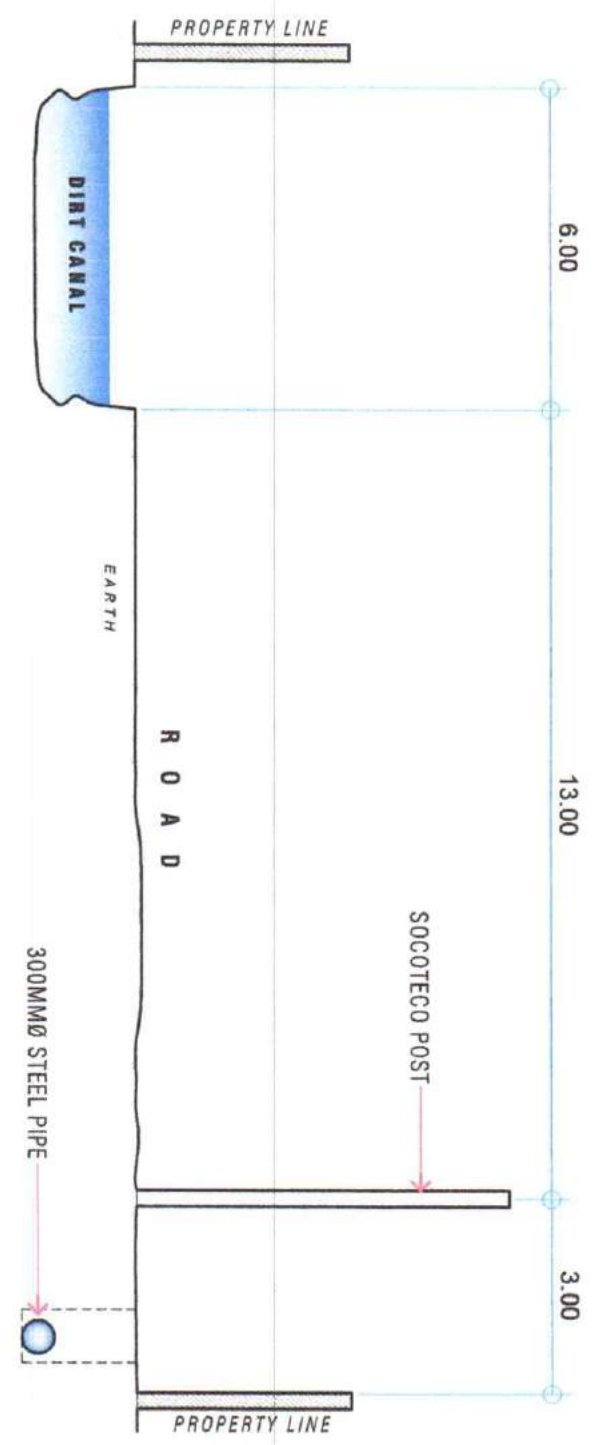
APPROVED BY:  
  
 ENGR. ARN B. GELLANGARIN  
 GENERAL MANAGER

CONTENT:  
**AS SHOWN**  
 DRAWN: ESA  
 REVISION:  
 CHECKED: MGG  
 DATE: 01 / 28 / 2021

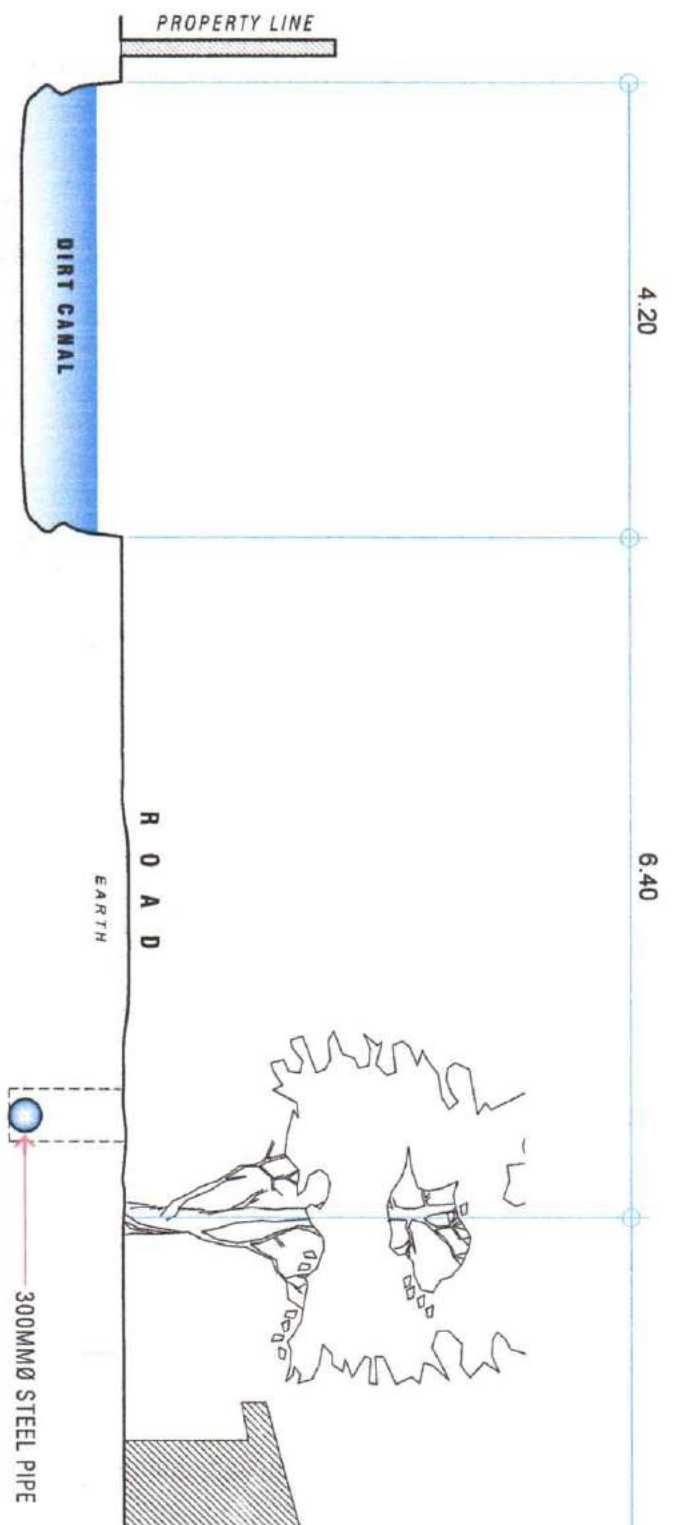
SHEET NO.: **4**



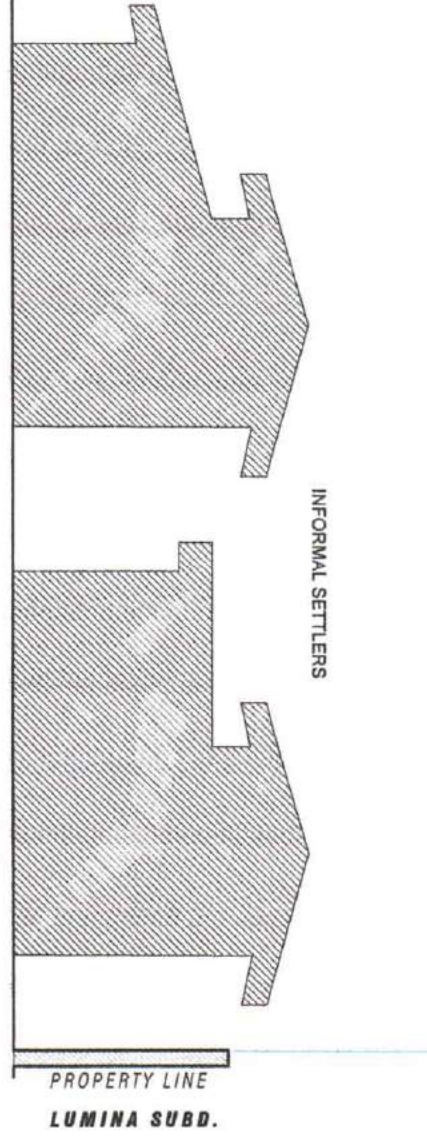
**SECTION THRU D-D**  
 SCALE: N.T.S.

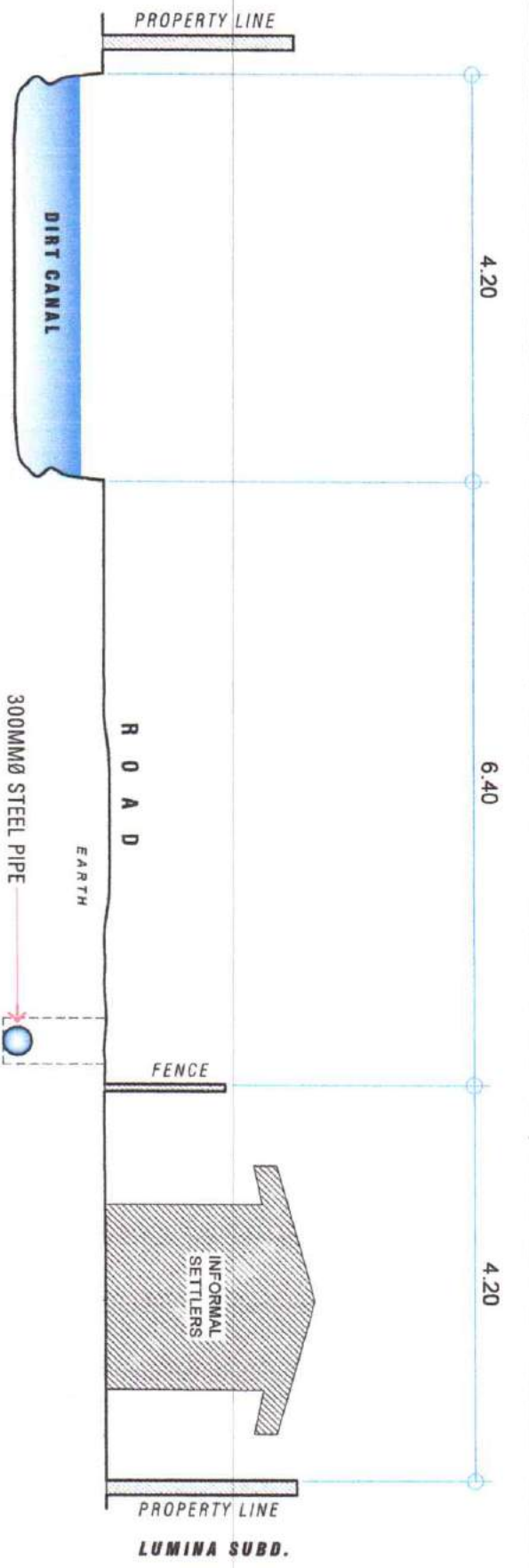


**SECTION THRU E-E**  
 SCALE: N.T.S.

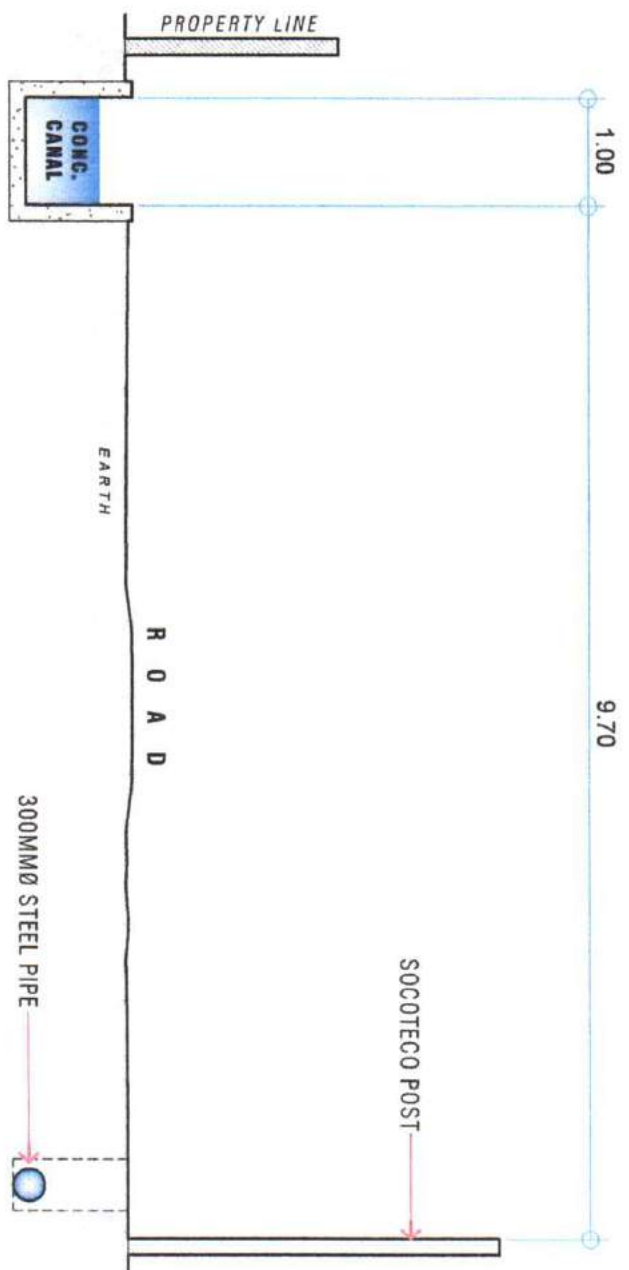


**SECTION THRU F-F**  
 SCALE: N.T.S.

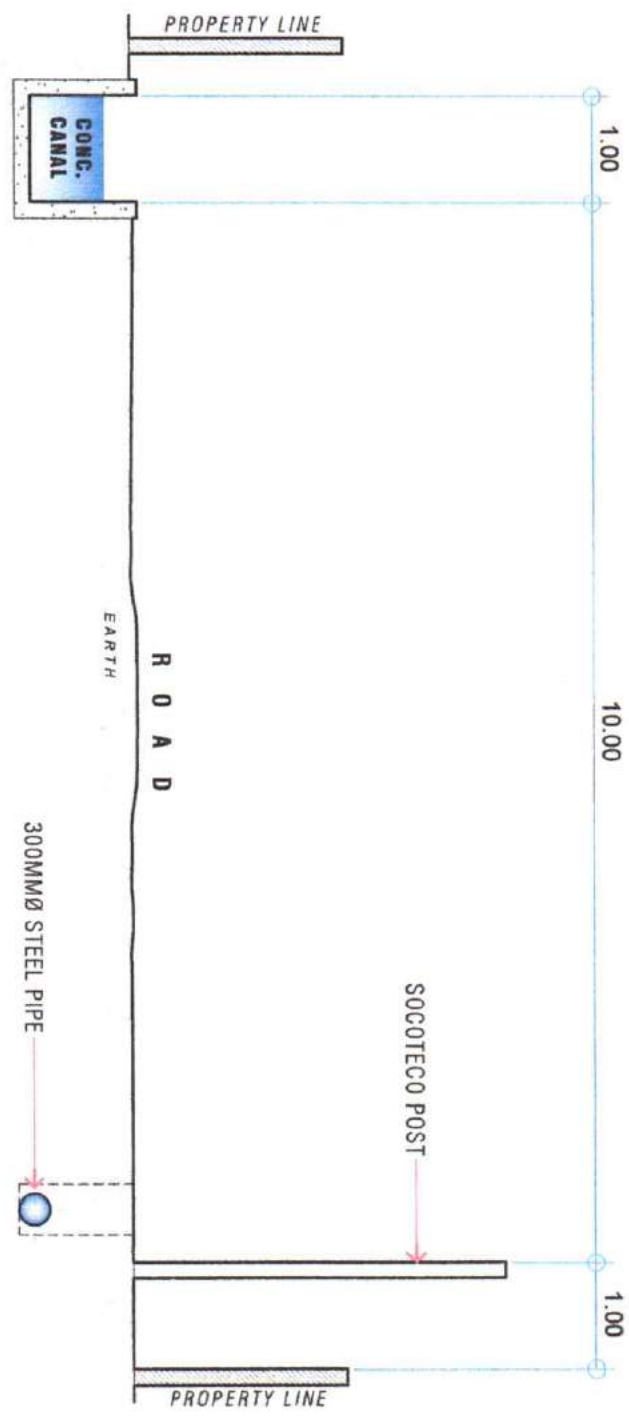




**SECTION THRU G-G**  
SCALE: N.T.S.

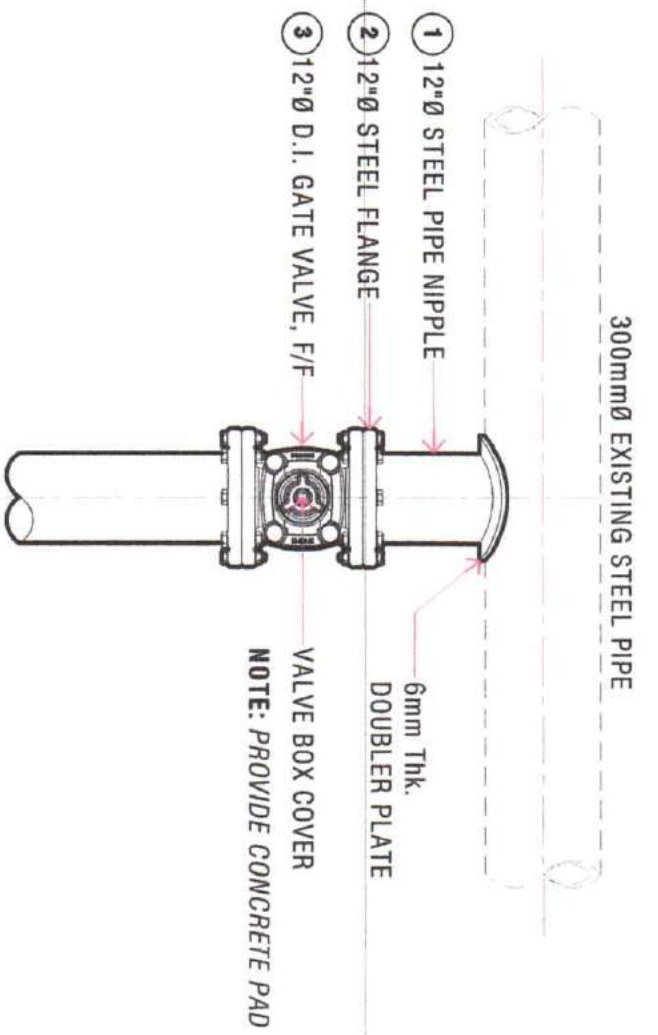


**SECTION THRU H-H**  
SCALE: N.T.S.

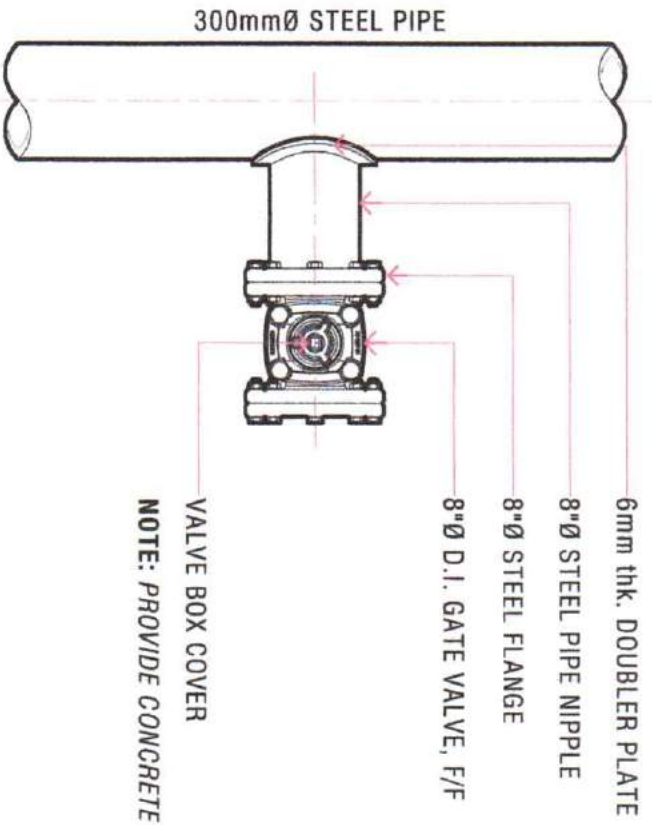


**SECTION THRU I-I**  
SCALE: N.T.S.

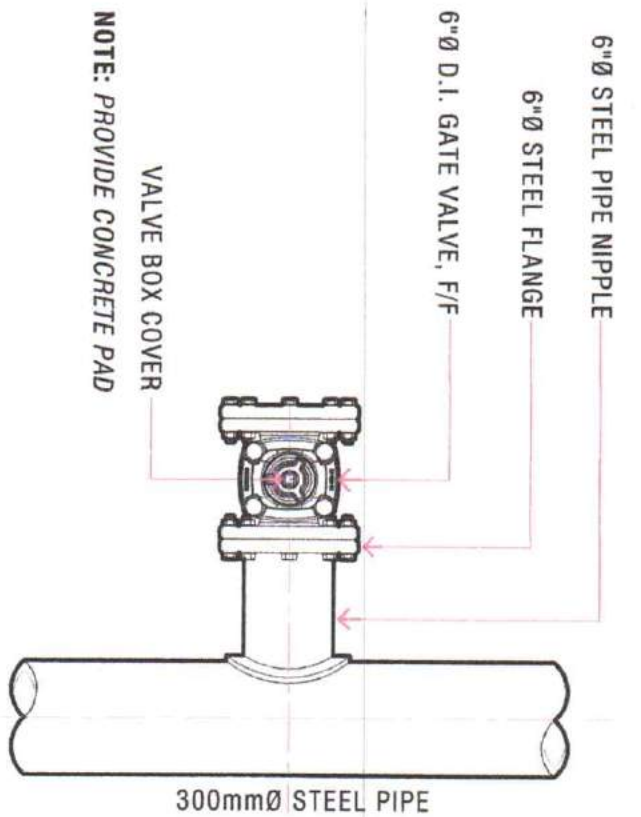
PROJECT TITLE / LOCATION: <b>INSTALLATION OF 300mmØ STEEL TRANSMISSION PIPELINES AND OTHER APPURTENANCES</b> NAPAL ROAD, BRGY. SAN ISIDRO, GEN. SANTOS CITY		CHECKED BY: ENGR. MICHAEL G. GABALES MANAGER - PDD	REVIEWED BY: ENGR. ROGELIO A. BESANA, JR. MANAGER A - ECD	APPROVED BY: ENGR. ARN B. GELLANGARIN GENERAL MANAGER	CONTENT: <b>AS SHOWN</b>	SHEET NO.: <b>5</b>
DRAWN: ESA	REVISION:	CHECKED: MGG	DATE: 01 / 26 / 2021			



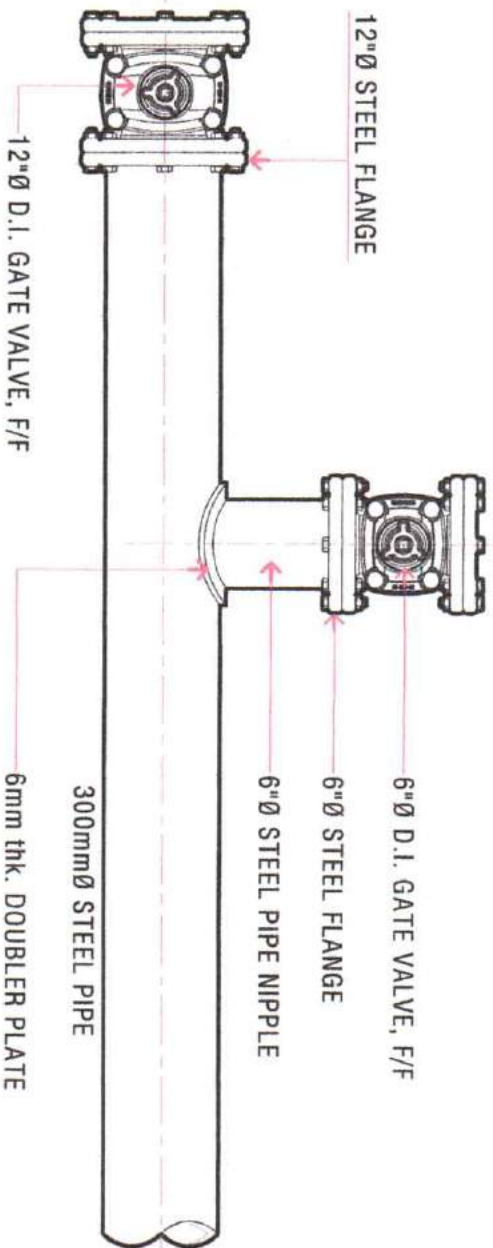
**TAPPING POINT DETAILS**  
SCALE: NTS



**DETAILS - A**  
SCALE: NTS

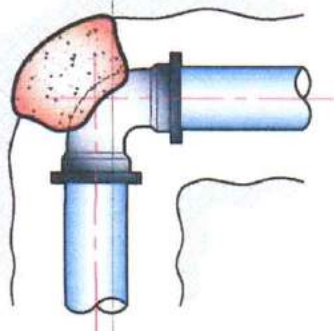


**STUB-OUT DETAILS**  
SCALE: NTS

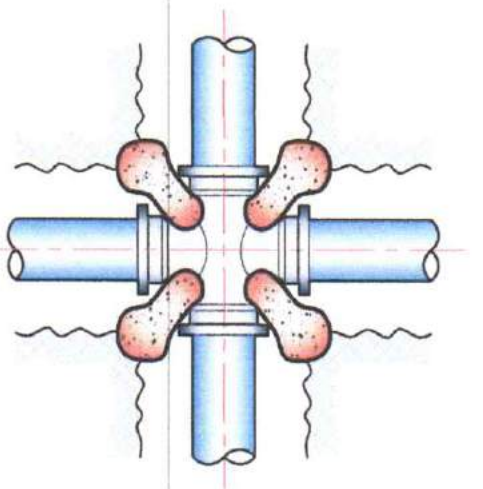


**DETAILS - B**  
SCALE: NTS

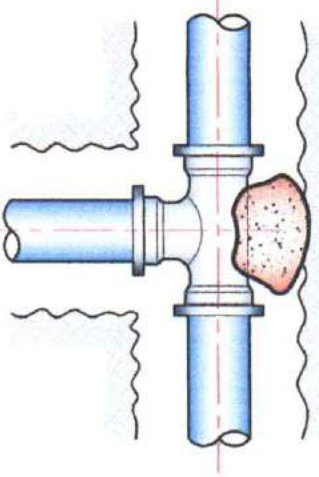
PROJECT TITLE / LOCATION: <b>INSTALLATION OF 300mmØ STEEL TRANSMISSION PIPELINES AND OTHER APPURTENANCES</b> NAPAL ROAD, BRGY. SAN ISIDRO, GEN. SANTOS CITY	CHECKED BY:  ENGR. MIGUEL G. GABALES MANAGER A - PDD	REVIEWED BY:  ENGR. ROGELIO A. BESANA, JR. MANAGER A - ECD	APPROVED BY:  ENGR. ARN B. GELLANGARM GENERAL MANAGER	CONTENT: <b>AS SHOWN</b>	SHEET NO.: <b>6</b>
				DRAWN: ESA CHECKED: MGG	REVISION: DATE: 01 / 26 / 2021



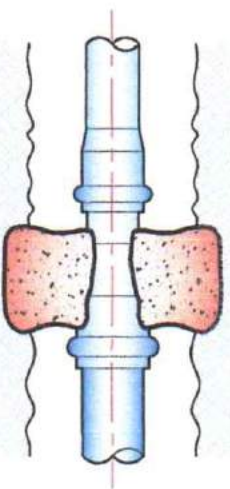
**90° ELBOW or BEND**



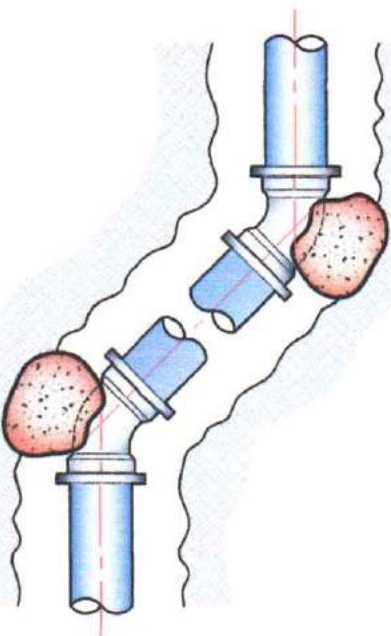
**CROSS TEE**



**TEE**



**REDUCER**



**OFFSET & BEND**

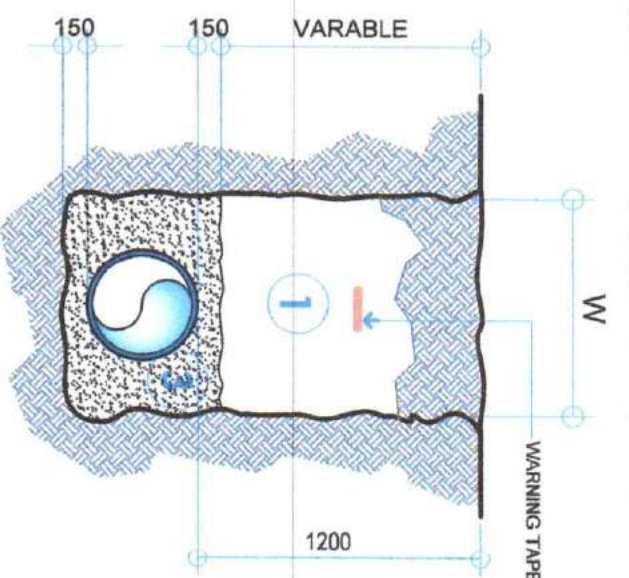
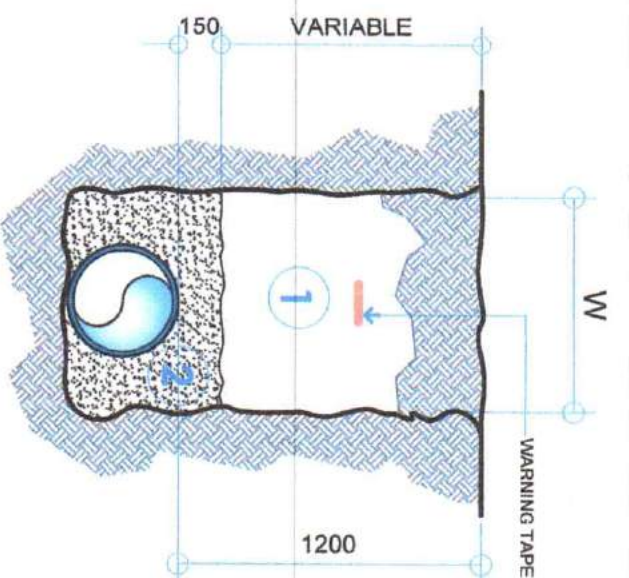
PIPE SIZE (mm)	TEE & DEAD END	90° BEND	45° BEND	22.5° BEND
150 (6")	0.20	0.28	0.15	0.08
200 (8")	0.35	0.50	0.27	0.14
250 (10")	0.55	0.77	0.42	0.21
300 (12")	0.79	1.11	0.60	0.31

**TABLE OF MINIMUM THRUST BLOCK BEARING AREA IN SQUARE METERS FOR PIPE SIZES**

- NOTES:**
1. ABOVE AREAS BASED ON AN ASSUMED SOIL BEARING PRESSURE OF 95 KPA.
  2. REDUCE OR INCREASE AREAS PROPORTIONATELY TO SUIT ACTUAL FIELD CONDITIONS UPON APPROVAL.
  3. CONCRETE FOR THRUST BLOCK SHALL BE 13.80 MPa (2000 psi).
  4. ALL CONCRETE SHALL BE POURED TO AVOID INTERFERENCE WITH JOINTS.
  5. THRUST BLOCK NOT REQUIRED ON STEEL PIPELINE WITH WELDED OR FLANGED JOINTS OR ON SOLVENT WELDED PVC PIPE.
  6. WHERE PIPE CONNECTS TO A FITTING IN A STEEL PIPELINE, THE STEEL PIPELINE SHALL BE BLOCKED AS SHOWN HEREON.
  7. BEARING AREAS BASED ON INTERNAL PRESSURE OF 105m (150 psi).

**THRUST BLOCK DET.**

SCALE: N T S

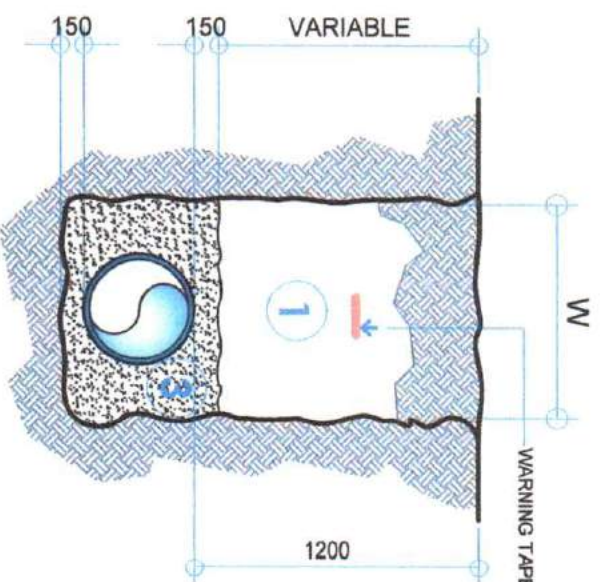


**TABLE OF TRENCH DIMENSION (mm)**

PIPE DIAMETER	90mm & UNDER		150mm	200mm	300mm
	3'- & UNDER	6"	8"	12"	
MINIMUM "W"	200	450	500	600	600
MAXIMUM "W"	300	750	800	900	

**LEGEND :**

1. COMPACTED SELECTED NATIVE MATERIAL BACKFILL.
2. COMPACTED SELECTED NATIVE MATERIAL IN 150MM LAYERS.
3. APPROVED SAND BEDDING AND BACKFILL HAND PLACED AND COMPACTED.
4. PAYMENT FOR ANY RESURFACING WILL BE BASED ON MAXIMUM TRENCH WIDTHS PER SIZE PIPE. SHOWN BELOW



**TRENCH DETAILS**

SCALE: N T S

PROJECT TITLE / LOCATION:  
**INSTALLATION OF 300mmØ STEEL TRANSMISSION PIPELINES AND OTHER APPURTENANCES**  
 NAPAL ROAD, BRGY. SAN ISIDRO, GEN. SANTOS CITY

CHECKED BY:  
  
 ENGR. MICHAEL G. SABALES  
 MANAGER A - ECD

REVIEWED BY:  
  
 ENGR. ROGELIO A. BESANA, JR.  
 MANAGER A - ECD

APPROVED BY:  
  
 ENGR. ARN B. GELLANGARIN  
 GENERAL MANAGER

CONTENT:  
**AS SHOWN**  
 DRAWN: ESA  
 REVISION:  
 CHECKED: MGG  
 DATE: 01 / 28 / 2021

SHEET NO.: **7**

