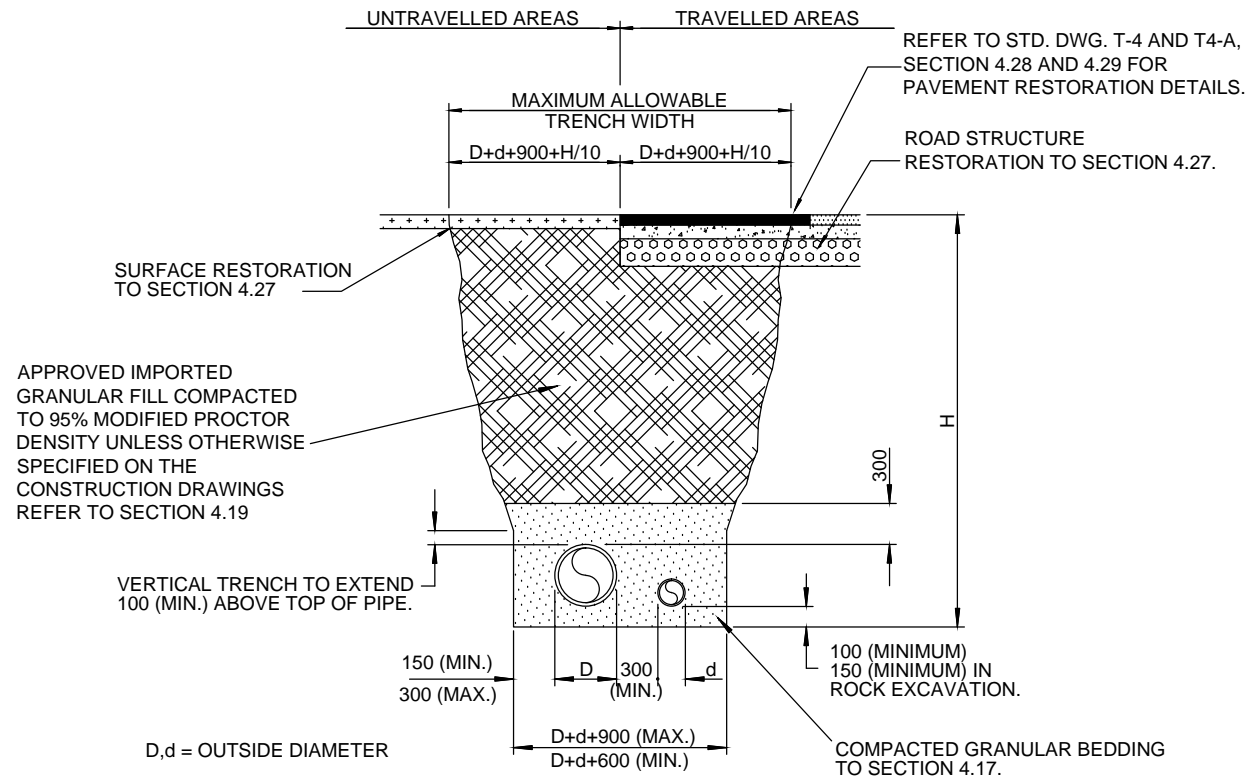
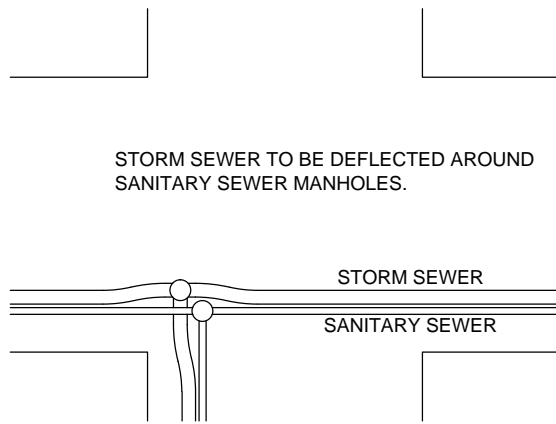


NOTES:  
1. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.

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- NOTES:
1. REFER TO STANDARD DRAWING T-1 FOR ADDITIONAL TRENCH DETAILS.
  2. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.



**SANITARY & STORM SEWER  
IN COMMON TRENCH**

Scale:	NTS
Created:	OCT 2012
Rev Date:	NOV 2016
Dwg No:	T-2

4.11.2016

REFER TO STD. DWG. T-4 AND T-4A,  
SECTION 4.28 AND 4.29 FOR  
PAVEMENT RESTORATION DETAILS

SURFACE RESTORATION  
TO SECTION 4.27

CONTROLLED DENSITY  
FILL TO SECTION 4.24

100 (MIN.)  
300 (MAX.)

d = OUTSIDE DIAMETER

100 (MINIMUM.) 150  
(MINIMUM) IN ROCK  
EXCAVATION.

PIPE ZONE.

COMPACTED GRANULAR  
BEDDING MATERIAL TO  
SECTION 4.17.

H

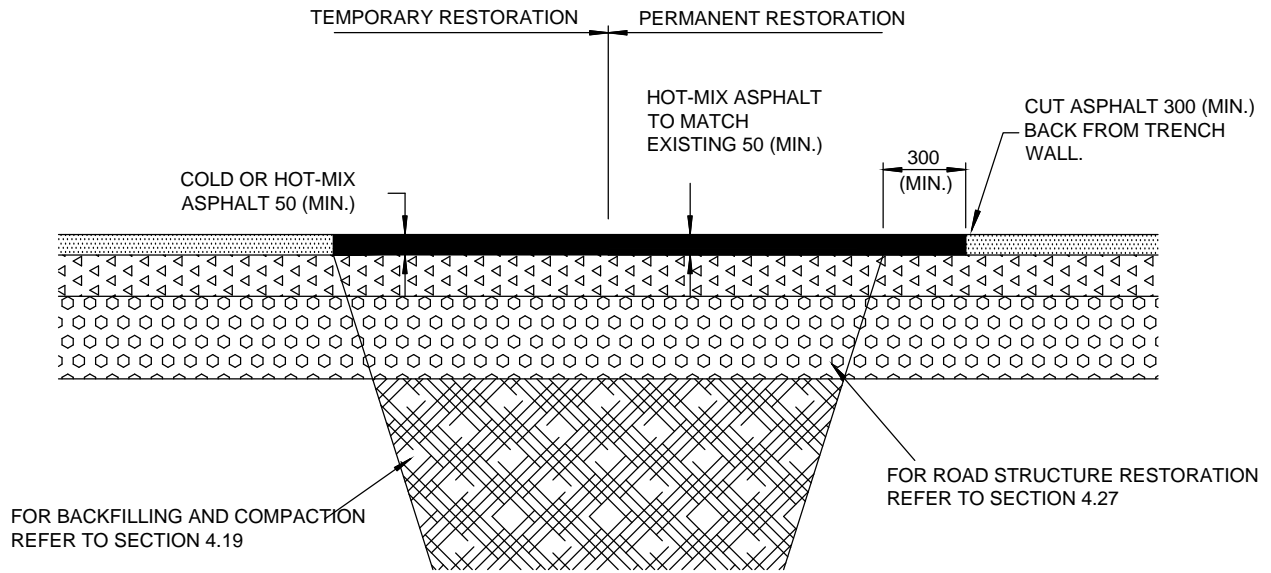
NOTES:

1. REFER TO STANDARD DRAWING T-1 FOR ADDITIONAL TRENCH DIMENSIONS AND DETAILS.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.

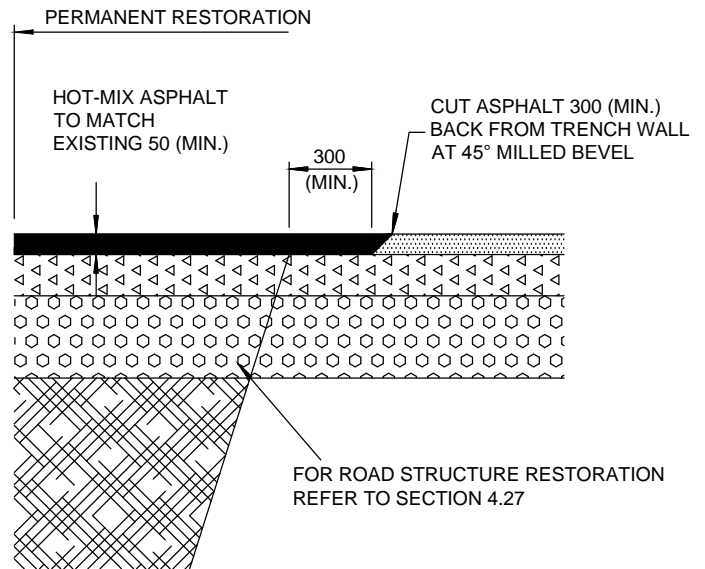


CONTROLLED DENSITY FILL  
IN PAVED SURFACE AREA

Scale: NTS  
 Created: MAY 1996  
 Rev Date: NOV 2016  
 Dwg No: T-3



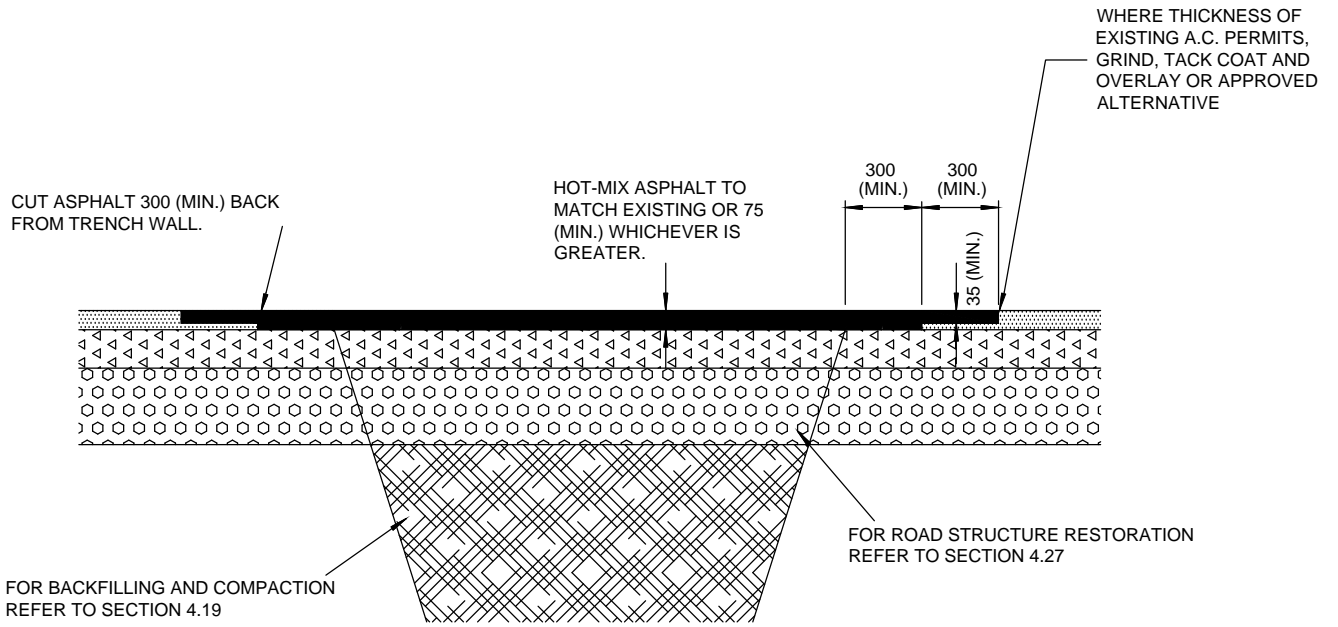
**ALTERNATIVE 1 - STRAIGHT CUT**



**ALTERNATIVE 2 - BEVEL CUT**

**NOTES:**

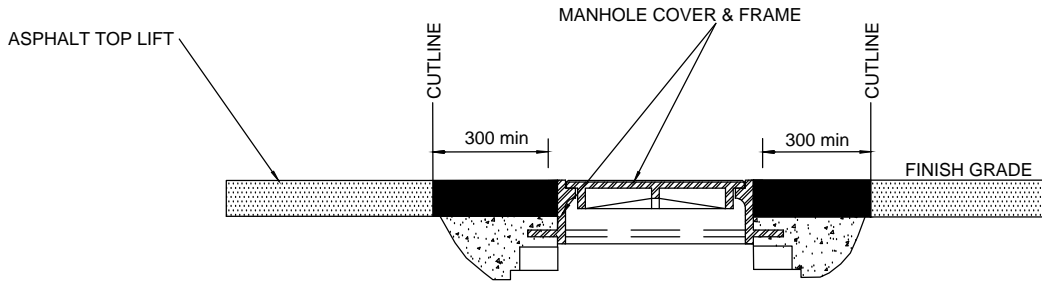
1. REFER TO STANDARD DRAWING T-1 FOR ADDITIONAL TRENCH DIMENSIONS AND DETAILS.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.



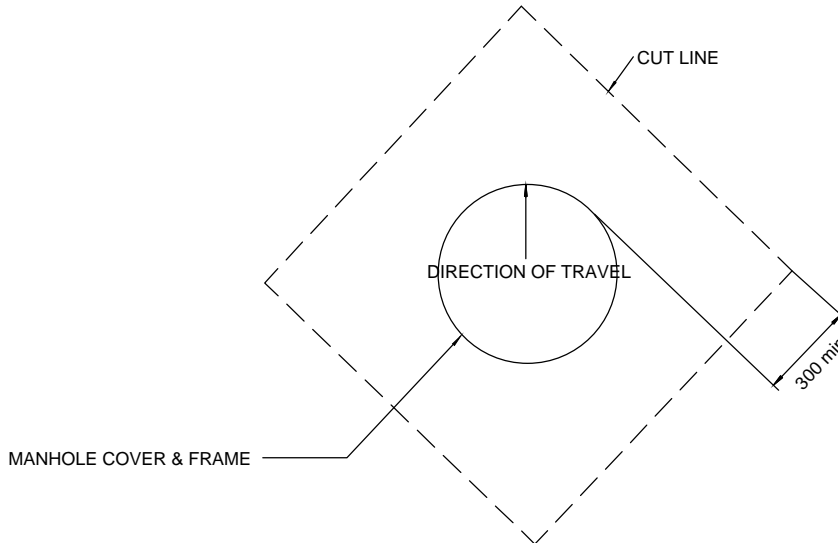
**PERMANENT RESTORATION**

- NOTES:
1. REFER TO STANDARD DRAWING T-1 FOR ADDITIONAL TRENCH DIMENSIONS AND DETAILS.
  2. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.





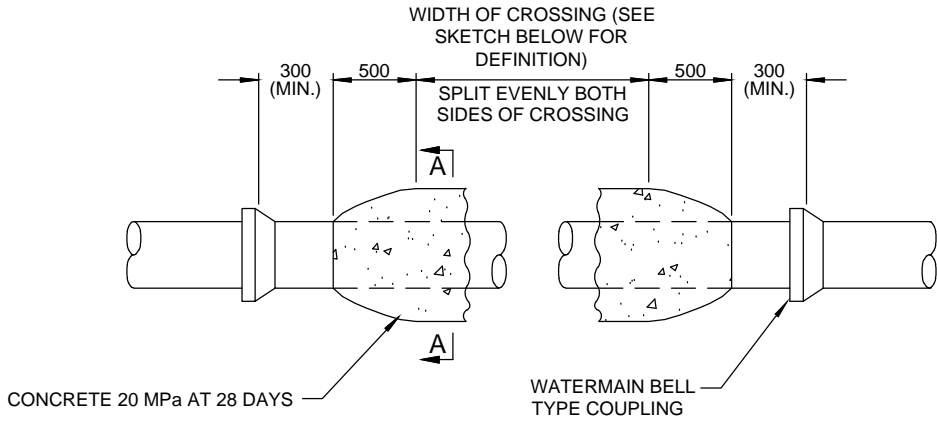
CONCRETE ENCASEMENT  
SUPPORT DETAIL



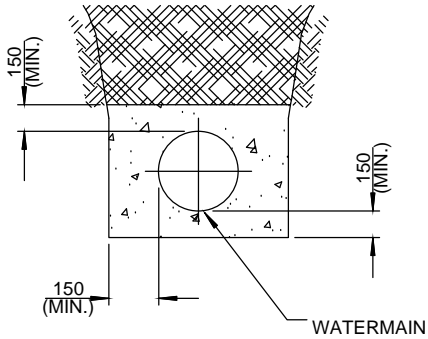
SQUARE CUT PLAN VIEW

NOTES:

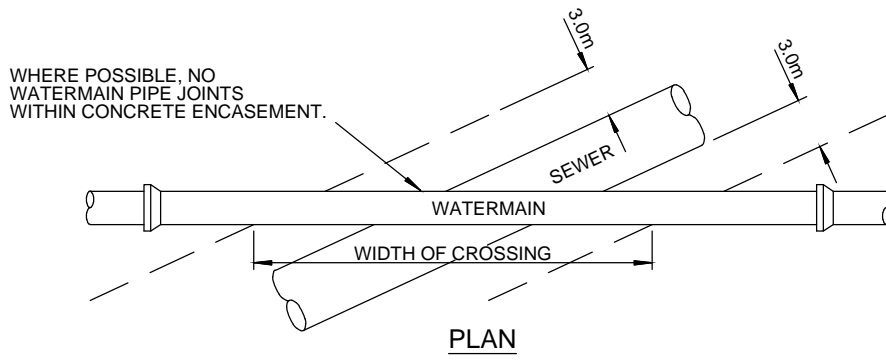
1. COVER MANHOLE WITH BUILDING PAPER AND CONSTRUCTION ASPHALT CONCRETE BASE COURSE AND WEARING COURSES.
2. SAW CUT SQUARE EXCAVATING AROUND MANHOLE 300mm MIN FROM MANHOLE FRAME.
3. RAISE MANHOLE COVER AND FRAME TO FINISH GRADE.
4. APPLY TACK COAT TO EDGES OF EXISTING PAVEMENT BEFORE INSTALLING PATCH.
5. FINISH JOINT WITH ASPHALT SEAL AND SAND.
6. REFER TO STANDARD DRAWINGS AS PER RELEVANT SECTIONS 5, 6, OR 7 FOR OTHER MANHOLE REQUIREMENTS.
7. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCT LIST WILL BE ACCEPTED FOR INSTALLATION.
8. REFER TO STANDARD DRAWING T-1 FOR ADDITIONAL TRENCH DIMENSIONS AND DETAILS.
9. ALL DIMENSIONS IN MILLIMETRES UNLESS SHOWN OTHERWISE.



ELEVATION



SECTION A-A



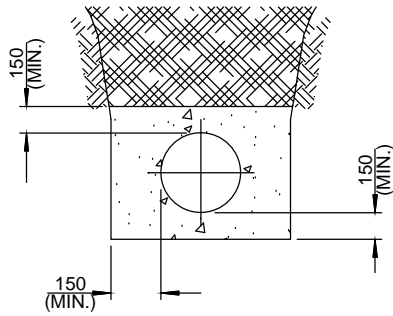
NOTES:

1. USE OF CONCRETE ENCASEMENT WHERE MINISTRY OF HEALTH'S MINIMUM WATER/SEWER SEPARATION OFFSET CANNOT BE MET, REQUIRES APPROVAL BY THE MINISTRY OF HEALTH.
2. FOR PIPE PROTECTION WITH CONCRETE REFER TO STANDARD DRAWING T-6.
3. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.

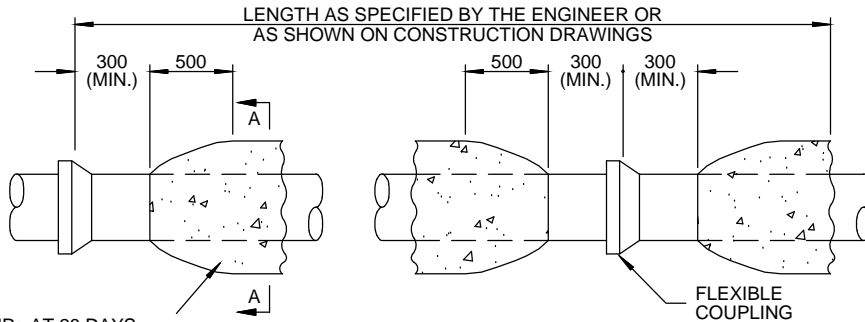


CONCRETE ENCASEMENT FOR WATERMAIN \ SEWER SEPARATION

Scale:	NTS
Created:	OCT 1993
Rev Date:	NOV 2016
Dwg No:	T-5



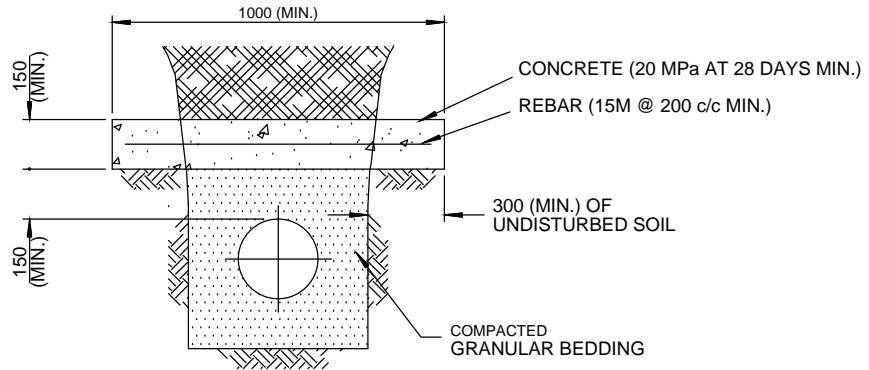
SECTION A-A



CONCRETE 20 MPa AT 28 DAYS

ELEVATION

**ALTERNATIVE 1 - ENCASEMENT**



**ALTERNATIVE 2 - PROTECTIVE SLAB**

NOTES:

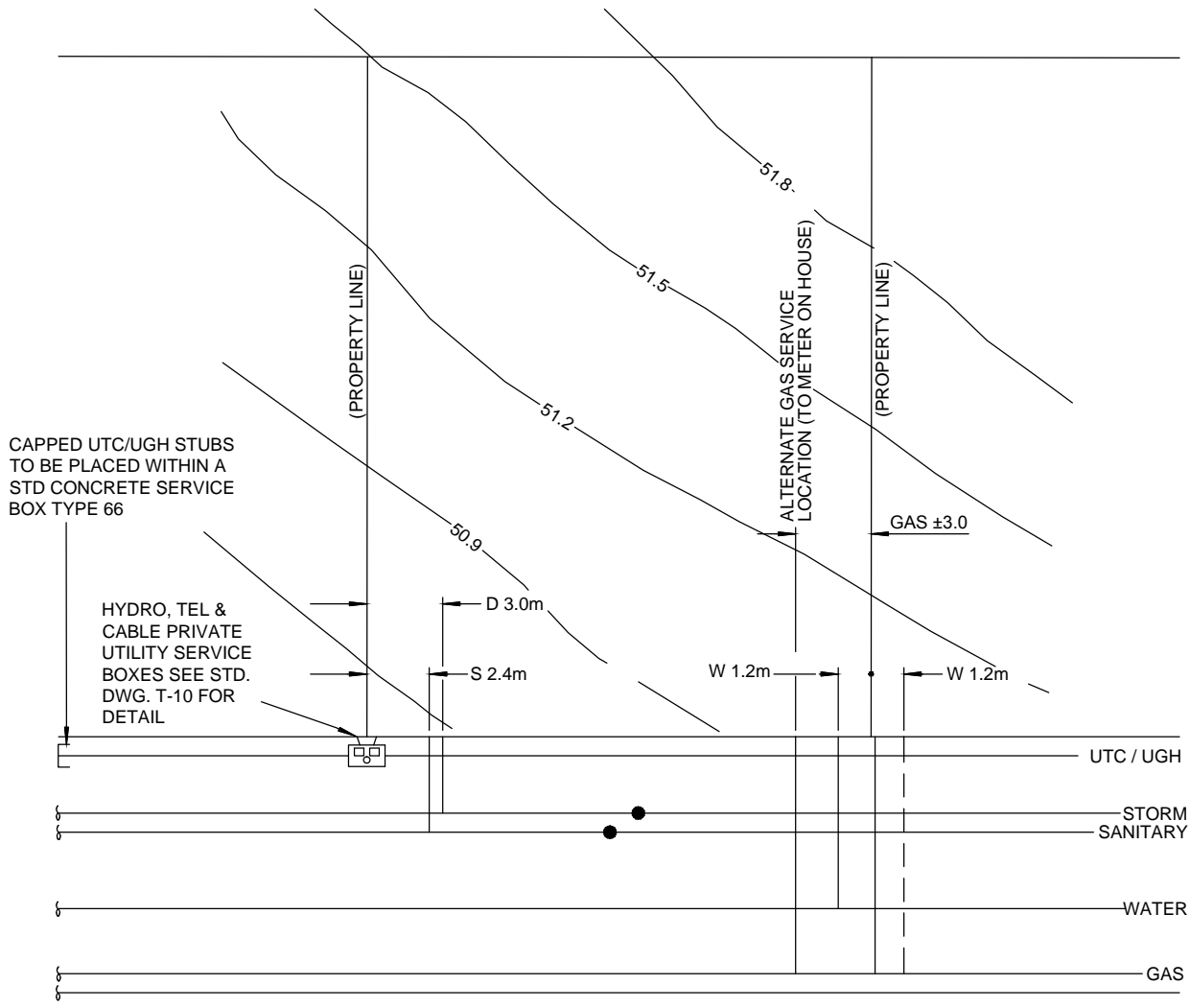
1. THE REQUIREMENT FOR CONCRETE PIPE PROTECTION SHALL BE DETERMINED BY THE ENGINEER. DIMENSIONS SHOWN ARE MINIMUM REQUIREMENTS AND SHALL BE MODIFIED TO SUIT PIPE LOADING CONDITIONS.
2. USE OF CONCRETE BEDDING OR HAUNCHING SHALL NOT BE PERMITTED ON PVC OR OTHER FLEXIBLE PIPE MATERIALS.
3. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.



PIPE PROTECTION WITH CONCRETE

Scale:	NTS
Created:	OCT 1993
Rev Date:	NOV 2016
Dwg No:	T-6





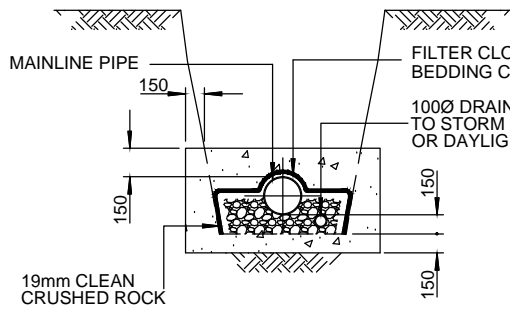
NOTES:

1. SANITARY AND STORM SEWER SERVICES TO BE INSTALLED ON THE LOWER SIDE OF THE LOT, AND WHERE POSSIBLE, SHALL BE FROM THE THE FRONT PROPERTY LINE
2. POLE RESERVE, IF REQUIRED, TO BE AT ALTERNATE LOT CORNER TO WATER SERVICES.
3. GAS SERVICES SHALL BE 1.0m MINIMUM SEPARATION FROM SANITARY, STORM AND WATER UTILITIES.
4. ALL DIMENSIONS IN METERS UNLESS OTHERWISE SHOWN.
5. CAPPED UTH/UGH STUBS MUST BE PLACED WITHIN A STANDARD CONCRETE SERVICE BOX TYPE 66.

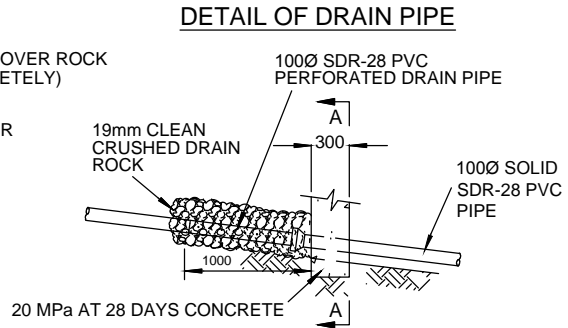


TYPICAL LOCATION OF SERVICE CONNECTIONS TO RESIDENTIAL VACANT LOTS

Scale:	NTS
Created:	OCT 2012
Rev Date:	NOV 2016
Dwg No:	T-7



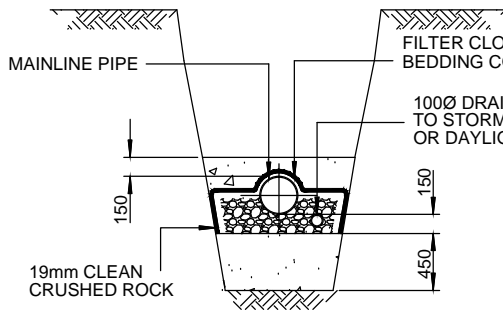
**SECTION A-A**



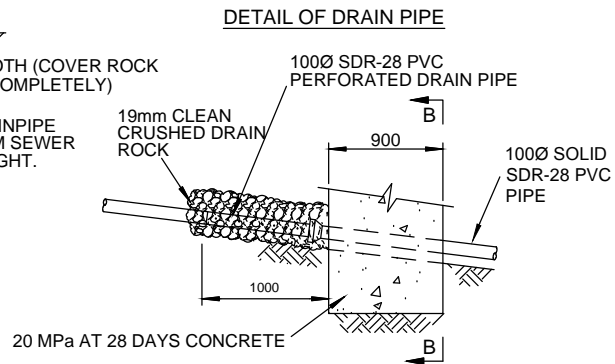
**PROFILE**

**ALTERNATIVE 1**  
FOR USE IN TILLS AND OTHER STABLE,  
WELL COMPACTED NATIVE MATERIALS.

NOTE: MAINLINE PIPE &  
FILTER CLOTH NOT  
SHOWN FOR CLARITY.



**SECTION B-B**



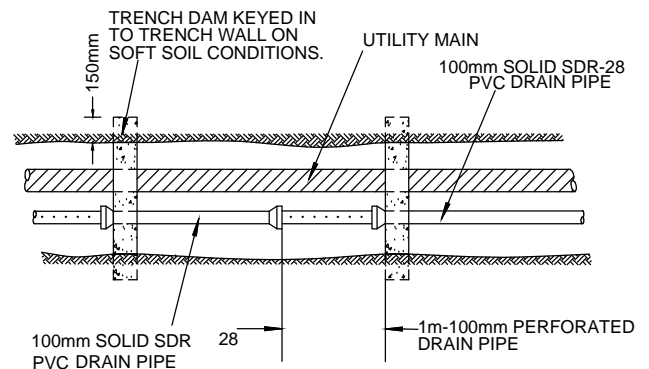
**PROFILE**

**ALTERNATIVE 2**  
FOR USE IN CLEAN GRAVELS, SANDS AND  
OTHER LOOSE, PERMEABLE NATIVE MATERIALS.

NOTE: MAINLINE PIPE &  
FILTER CLOTH NOT  
SHOWN FOR CLARITY.

**NOTES:**

1. IF APPROVED BY THE ENGINEER, IN AREAS INACCESSIBLE BY CONSTRUCTION EQUIPMENT, WET, PRE-MIXED CONCRETE FILLED SANDBAGS MAY BE USED.
2. REFER TO SECTION 4.18 FOR TRENCH DAM SPACING.
3. PROVIDE TRENCH DRAINAGE TO AN ACCEPTABLE WATERCOURSE OR STORM COLLECTION SYSTEM FROM EVERY TRENCH DAM. HIGHEST END OF THE TRENCH DAM DRAIN PIPE SHALL BE CAPPED.
4. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.
5. ALL PIPE TO BE SDR-28 PVC.

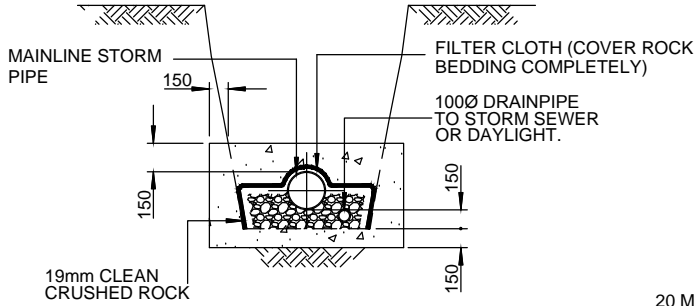


**TYPE 1-PLAN VIEW**



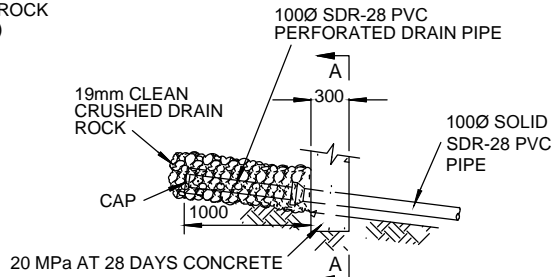
**TRENCH DAMS - TYPE 1  
FOR ALL UTILITY MAINS**

Scale: NTS  
Created: OCT 2012  
Rev Date: NOV 2016  
Dwg No: T-8



**SECTION A-A**

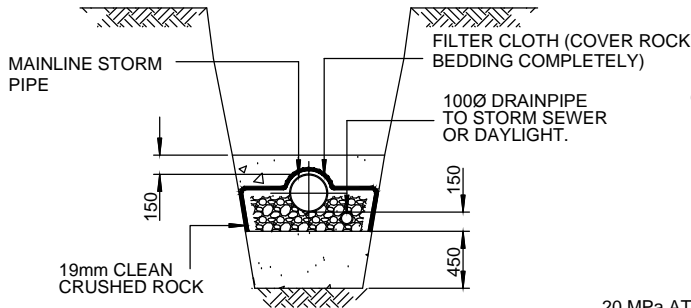
**DETAIL OF DRAIN PIPE**



**PROFILE**

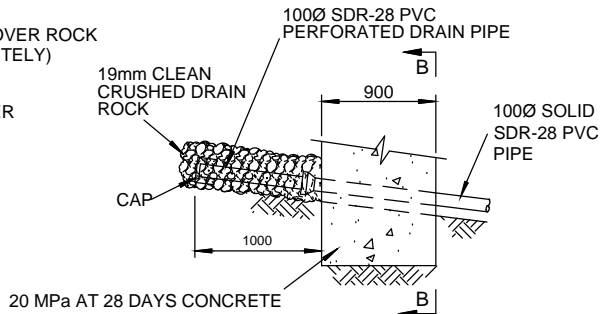
**ALTERNATIVE 1**  
FOR USE IN TILLS AND OTHER STABLE,  
WELL COMPACTED NATIVE MATERIALS.

NOTE: MAINLINE PIPE &  
FILTER CLOTH NOT  
SHOWN FOR CLARITY.



**SECTION B-B**

**DETAIL OF DRAIN PIPE**



**PROFILE**

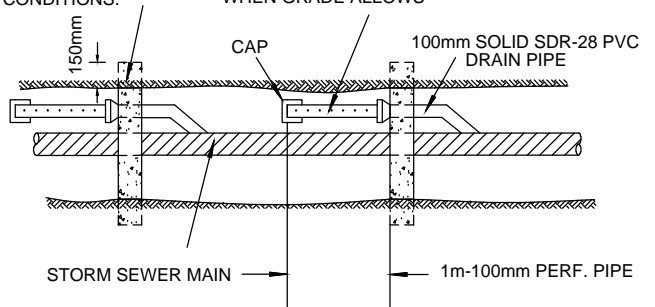
**ALTERNATIVE 2**  
FOR USE IN CLEAN GRAVELS, SANDS AND  
OTHER LOOSE, PERMEABLE NATIVE MATERIALS.

NOTE: MAINLINE PIPE &  
FILTER CLOTH NOT  
SHOWN FOR CLARITY.

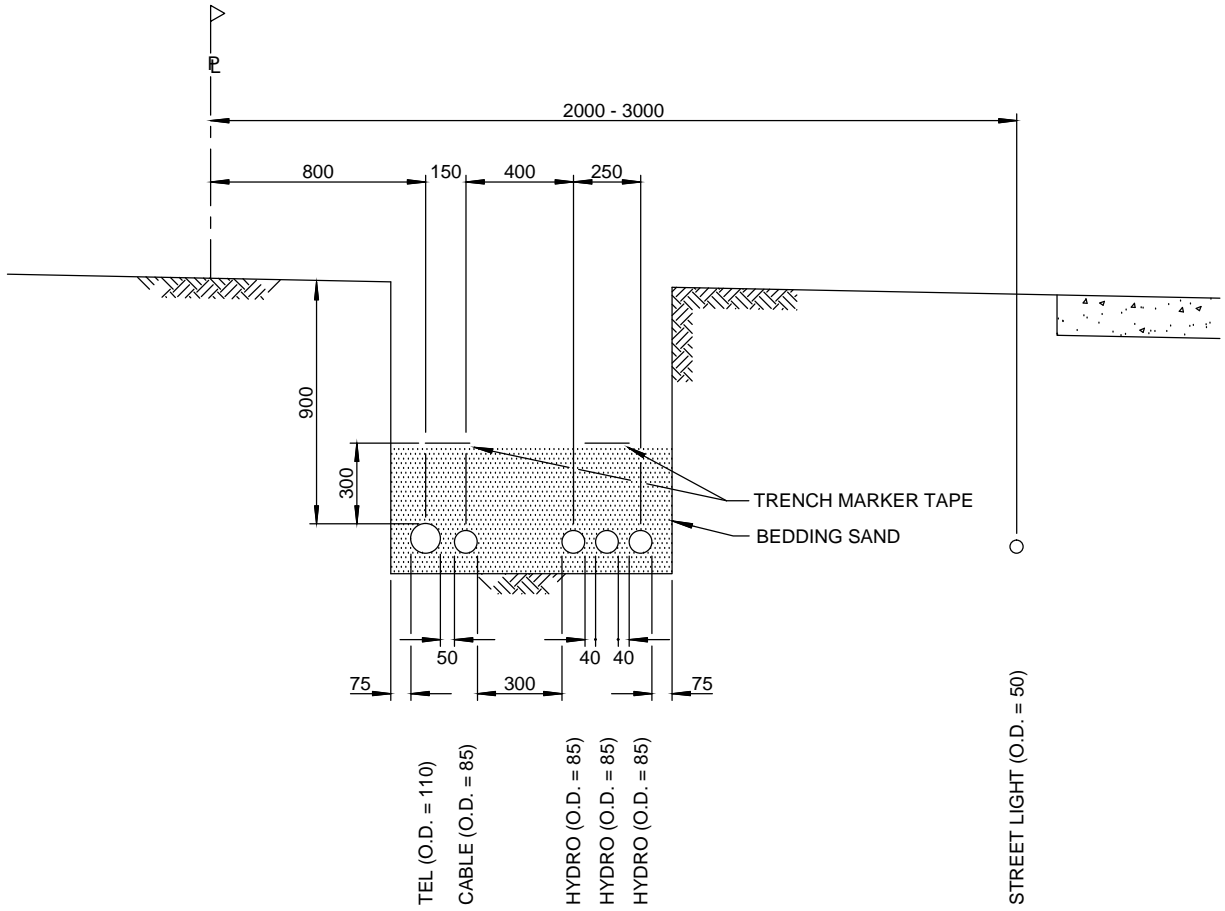
**NOTES:**

1. IF APPROVED BY THE ENGINEER, IN AREAS INACCESSIBLE BY CONSTRUCTION EQUIPMENT, WET, PRE-MIXED CONCRETE FILLED SANDBAGS MAY BE USED.
2. REFER TO SECTION 4.18 FOR TRENCH DAM SPACING.
3. PROVIDE TRENCH DRAINAGE TO AN ACCEPTABLE WATERCOURSE OR STORM COLLECTION SYSTEM FROM EVERY TRENCH DAM. HIGHEST END OF THE TRENCH DAM DRAIN PIPE SHALL BE CAPPED.
4. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.
5. ALL PIPE TO BE SDR-28 PVC.

TRENCH DAM KEYED IN TO TRENCH WALL ON SOFT SOIL CONDITIONS. 100mm PERFORATED DRAIN SDR-28 PVC PIPE MAY BE TIED INTO STORM MAIN WHEN GRADE ALLOWS



**TYPE 2-PLAN VIEW**



NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
2. REFER TO UTILITY CONSTRUCTION DRAWINGS FOR DUCT SIZE AND OTHER CONSTRUCTION REQUIREMENTS.
3. ALL UTILITIES SHALL BE TRACEABLE ELECTRONICALLY

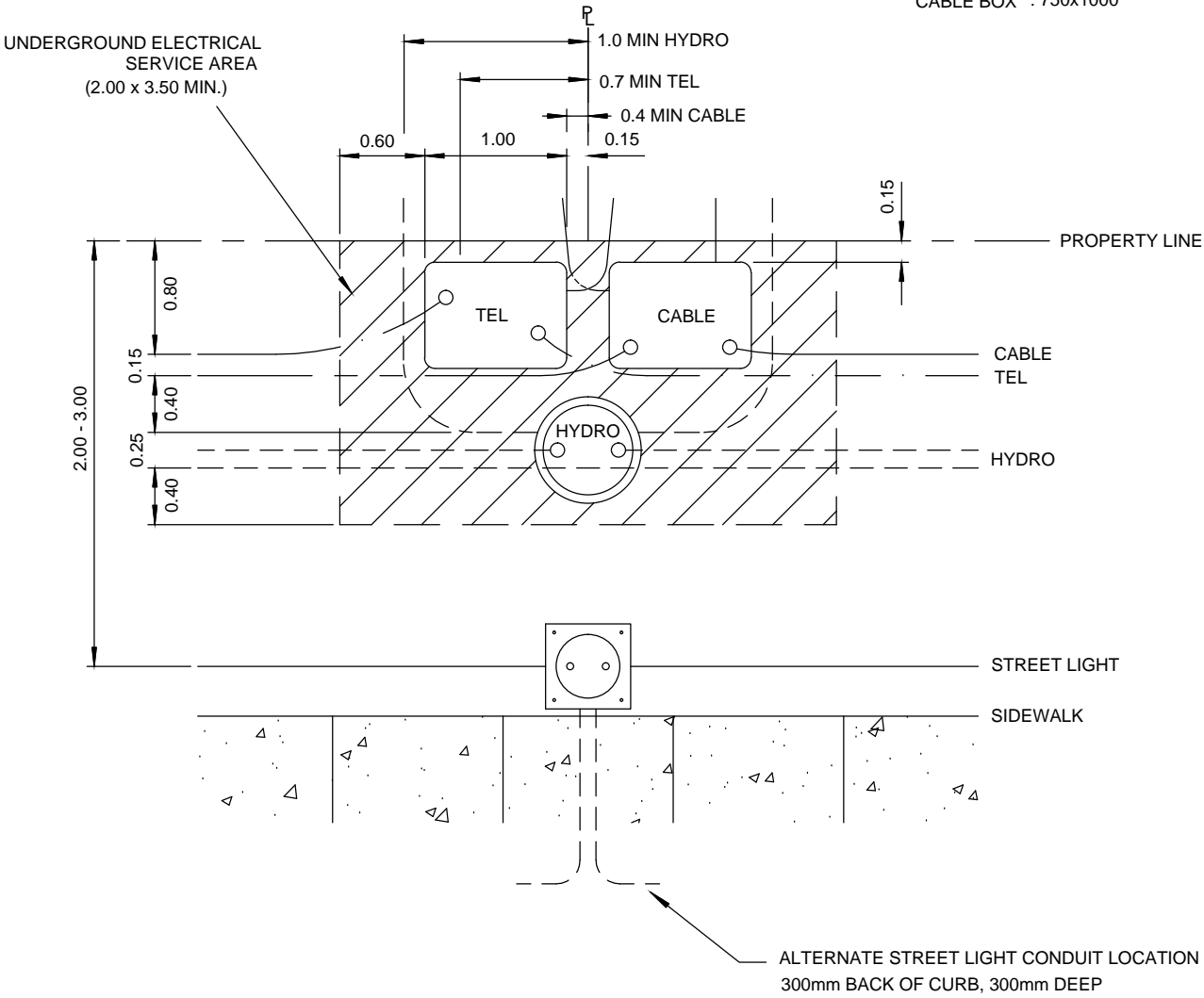


PRIVATE UTILITIES  
 UNDERGROUND ELECTRICAL  
 COMMON TRENCH DETAIL

Scale:	NTS
Created:	MAY 2001
Rev Date:	NOV 2016
Dwg No:	T-9

APPROXIMATE DIMENSIONS (mm)

HYDRO BOX : 750Ø  
 TEL BOX : 750x1000  
 CABLE BOX : 750x1000



**NOTE:**

1. REFER TO SECTION 9 - STREETS, TRAFFIC SIGN AND MARKINGS FOR STREET LIGHT AND SIDEWALK OFFSETS.
2. FOR STREET LIGHT OFFSETS LESS THAN 3.00m, HYDRANTS AND STREET LIGHT POLES SHALL NOT BE LOCATED WITH UNDERGROUND ELECTRICAL SERVICES.
3. SERVICE BOXES SHALL HAVE MINIMUM SEPARATION OF 300mm.
4. REFER TO UTILITY CONSTRUCTION DRAWINGS FOR FURTHER DETAILS.
5. ALL UTILITIES SHALL BE TRACEABLE ELECTRONICALLY.
6. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.

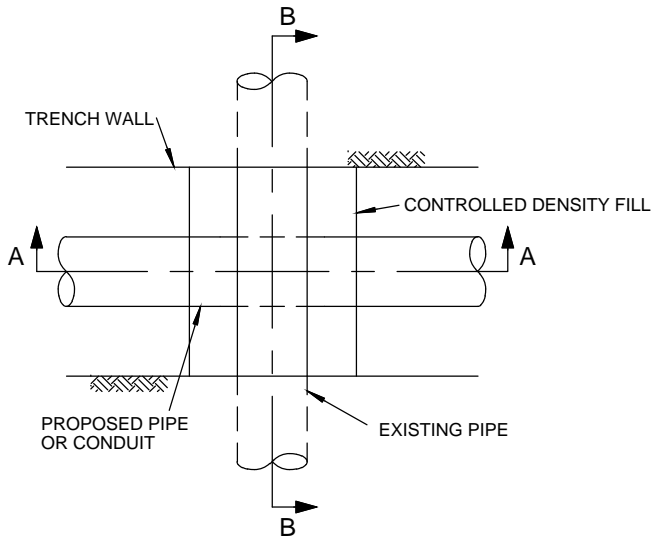
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6.16.2016

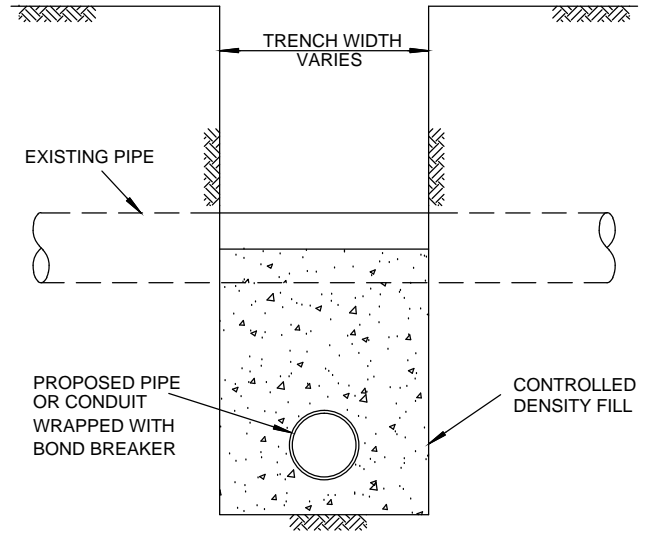


**PRIVATE UTILITIES  
 UNDERGROUND ELECTRICAL  
 TYPICAL SERVICE BOX LOCATION**

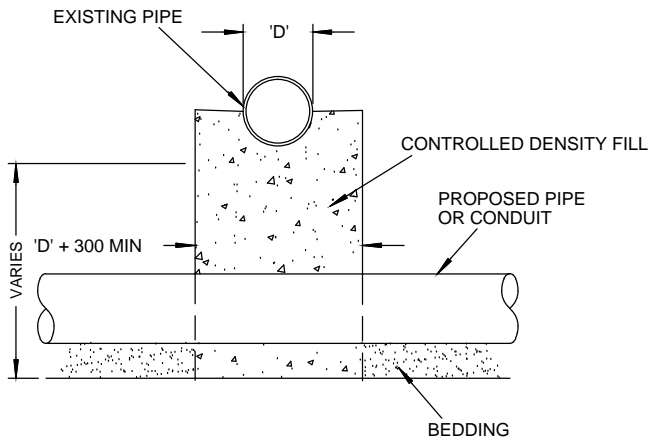
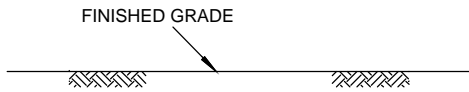
Scale:	NTS
Created:	OCT 2012
Rev Date:	NOV 2016
Dwg No:	T-10



PLAN



SECTION B-B



SECTION A-A

NOTES:

1. ALL DIMENSION IN MILLIMETERS UNLESS SHOWN OTHERWISE.