TELESCOPE TERRACE
UTILITY UPGRADE

GENERAL NOTES:
1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH CITY OF NANAIMO ENGINEERING STANDARDS AND SPECIFICATIONS.
2. ALL LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED PRIOR TO CONSTRUCTION. ALL EXISTING WATER MAINS TO BE CONFIRMED PRIOR TO CONSTRUCTION.
3. COORDINATES ARE GROUND LEVEL (UTM NAD 83 WITH COMBINED SCALE FACTOR OF 1/0.99965) AND ALL ELEVATIONS ARE TO GEODETIC DATUM.
4. LOCATION OF SERVICE CONNECTIONS TO BE DETERMINED ON SITE UNLESS SHOWN OTHERWISE.
5. ANY ALTERNATIVES TO SPECIFIED MATERIALS OR APPURTENANCES TO BE APPROVED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION.
6. ALL EXISTING SERVICES ARE APPROXIMATE AND SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION. EXISTING AND PROPOSED SERVICES MAY REQUIRE ADJUSTMENT DUE TO CONFLICT. OLD MATERIALS SHALL BE NOTED OR NOT CONFIRMED.
7. TRENCHING TO BE TO OLD CITY OF NANAIMO STANDARDS DAY 1. TRAVELLED AREA SHOULDN'T BE EXPOSED GROUND MATERIAL COMPACTED TO MINIMUM 95% MODIFIED PROCTOR UNLESS OTHERWISE APPROVED BY THE ENGINEER.
8. ASPHALT RESTORATION TO BE AS CITY OF NANAIMO STANDARD Dwg # T-6 FOR TRENCH RESTORATION.
9. ALL LOCATIONS OF EXISTING SERVICES ARE APPROXIMATE AND SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION. EXISTING AND PROPOSED SERVICES MAY REQUIRE ADJUSTMENT DUE TO CONFLICT. THE WARRIOR SHALL BE NOTED OR NOT CONFIRMED.
10. ROAD RESTORATION TO INCLUDE 100% OF HOT PAVEMENT MATERIALS TO BE COMPLETED BY OTHERS.

SANITARY SEWER NOTES:
1. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SERVICE TO EXISTING LWRRS DURING CONSTRUCTION THROUGH REPAIRS, PUMPING OR GRIPING SERVICE. THE CONTRACTOR IS TO PROVIDE IN ADVANCE PLANS PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL SECURE THAT PUMPING EQUIPMENT IS SECURED AND HANDLED AS GOOD WORKING CONDITION DURING THE PROJECT.
2. ALL SANITARY SERVICE BOXES ENCOUNTERED ARE TO BE LIDGED AND LIDGED PRIOR TO COMPLETION WITH THE EXCERPT OF 3213 TELESCOPIC TERRACE.
3. ALL MAINS PRIOR TO ASPHALT RESTORATION.
4. ALL SANITARY SERVICES SHALL BE 108 PVC SIZES UNLESS NOTED OTHERWISE.
5. ALL SANITARY SERVICE BOXES SHALL BE IN ACCORDANCE WITH CITY OF NANAIMO STD DWG #5 AND #6.
6. ALL PIPING AND RELATED APPURTENANCES TO BE INSPECTED PRIOR TO BACKFILLING OF THE TRENCH.
7. THE CONTRACTOR IS TO FLUSH AND PROVIDE THE CITY OF NANAIMO CCTV INSPECTION OF ALL MAIN PRIOR TO ASPHALT RESTORATION.

WATERMAIN NOTES:
1. MINIMUM COVER OVER WATERMAIN TO BE 1.20M OR AS SHOWN.
2. ALL WATERMAIN WORKING PRESSURE IS 932 kPa (135 PSI) AND WATERMAIN TEST PRESSURE IS 1397 kPa (203 PSI).
3. ALL PIPE MATERIAL TO BE GREY DUCTILE IRON.
4. ALL WATERMAIN JOINTS WITHIN 3.0M HORIZONTAL OR 0.45M VERTICAL OF SANITARY OR STORM DRAINAGE SERVICE BOXES SHALL BE DISCONNECTED AND RISER PIPE FILLED WITH WATER
5. ALL WATERMAIN JOINT DEFORMATION TO BE INSPECTED.
6. ALL WATERMAIN JOINTS ARE TO BE INSPECTED WITH WATER MAIN EXAMINER PROVIDE A BYPASS PLAN PRIOR TO STARTING CONSTRUCTION. THE CONTRACTOR SHALL SECURE THAT PUMPING EQUIPMENT IS SECURED AND HANDLED AS GOOD WORKING CONDITION DURING THE PROJECT.
7. THE CONTRACTOR IS TO FLUSH AND PROVIDE THE CITY OF NANAIMO CCTV INSPECTION OF ALL MAIN PRIOR TO ASPHALT RESTORATION.

STORM DRAINAGE NOTES:
1. ALL CATCH MAINS TO BE REFLECTED ON EXISTING STORM DRAINAGE CONSTRUCTION WITHOUT WRITTEN APPROVAL FROM THE CITY OF NANAIMO CONSTRUCTION REPRESENTATIVE.
2. ALL STORM DRAINAGE SERVICE BOXES SHALL BE 108 PVC SIZES UNLESS NOTED OTHERWISE.
3. ALL STORM DRAINAGE SERVICE BOXES ARE TO BE INSTALLED BELOW EXISTING EMBEDMENT ELEVATION OR AT THE SAME EBBET AS THE SANITARY SERVICES WHERE POSSIBLE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
4. NOT ALL STORM CONNECTIONS ARE SHOWN. SOME PROPERTIES MAY HAVE MORE THAN ONE CONNECTION TO THE EXISTING DITCH OR ADJACENT DITCH.
5. ALL EXISTING DITCHES AND STORM DRAINAGE SYSTEMS THAT ARE TO BE ABANDONED SHALL BE INSPECTED FOR REMAINING STORM SERVICE LEADS. ALL EXISTING LEADS TO BE CONNECTED TO THE NEW STORM DRAINAGE SYSTEM WITH THE EXCERPT OF 3213 TELESCOPIC TERRACE.
6. ALL PIPING AND RELATED APPURTENANCES TO BE INSPECTED AND APPROVED PRIOR TO BACKFILLING OF Trenched.
7. THE CONTRACTOR IS TO FLUSH AND PROVIDE THE CITY OF NANAIMO CCTV INSPECTION OF ALL MAIN PRIOR TO ASPHALT RESTORATION.
8. ALL EXISTING SEWER MAINS TO BE DISCONNECTED AND RISER PIPE FILLED WITH WATER MAIN EXAMINER PROVIDE A BYPASS PLAN PRIOR TO STARTING CONSTRUCTION. THE CONTRACTOR SHALL SECURE THAT PUMPING EQUIPMENT IS SECURED AND HANDLED AS GOOD WORKING CONDITION DURING THE PROJECT.

ROAD NOTES:
FOLLOWING ASPHALT REMOVAL, EXISTING ROADWAY TO BE TRAVELED AND INSPECTION OF ROAD UNBARKED.
2. ROAD RESTORATION TO INCLUDE 100% OF HOT PAVEMENT MATERIALS TO BE COMPLETED BY OTHERS.

PROJECTIONS:
1. PROJECT LOCATION
2. KEY PLAN
3. DRAWING TITLE
4. SHEET No.
5. DRAWING LIST AND GENERAL NOTES
6. WATERMAIN - PLAN AND PROFILE
7. WATERMAIN - ELEVATIONS
8. STORM DRAINAGE - PLAN AND PROFILE
9. STORM DRAINAGE - ELEVATIONS
10. SANITARY SEWER - PLAN AND PROFILE
11. SANITARY SEWER - ELEVATIONS
12. GENERAL NOTES

ISSUED FOR TENDER
KOERS & ASSOCIATES ENGINEERING LTD.
Consulting Engineers

C.P. 32-2920
Eng. No. 2012-001-0057
KOERS & ASSOCIATES ENGINEERING LTD.
Consulting Engineers

C.P. 32-2920
Eng. No. 2012-001-0057

Koers & Associates

ENGINEERING LTD.

Koers & Associates

Consulting Engineers

KOERS & ASSOCIATES
ENGINEERING LTD.

Consulting Engineers
**WATERMains ELEVATIONS**

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<th>STA (m)</th>
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<tr>
<td>1+000</td>
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**WATERmains ASSESSMENT**

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**NOTES:**
1. Contractor shall adjust all surface features including manholes, valve boxes & catchbasin to suit final asphalt elevation.
2. REMOVE EXISTING ASPHALT CURB TO SUIT FINAL ROAD ELEVATION.
3. REMOVE ORGANIC MATERIAL IN AREAS OF ROAD FEATURES INCLUDING MANHOLES, VALVE BOXES & CATCH BASINS TO SUIT FINAL ASPHALT ELEVATION.
4. INSTALL WATER CONTROL CURB AT DRIVEWAY TELESCOPE TERRACE (TYP.).
5. INSTALL WATER SERVICE FOR FUTURE DEVELOPMENT C/W SERVICE BOX, CURB STOP AND SANITARY SERVICE TO ORIGINAL OR BETTER CONDITION (TYP.).
6. REPLACE EXISTING CURB CONDITION (TYP.)
7. CONTRACTOR SHALL ADJUST ALL SURFACE FEATURES INCLUDING MANHOLES, VALVE BOXES & CATCH BASINS TO SUIT FINAL ASPHALT ELEVATION.
8. INSTALL AND CONNECT WATER MAIN TO PROPERTY LINE AND CONNECT EXISTING SERVICE AS PER CONSTRUCTION REPRESENTATIVE.
9. REMOVE 50mm OF ASPHALT (COMPACTED) WITH 50mm OF ASPHALT (COMPACTED) FOR CONTINUATION, SEE 1733-05.
10. REMOVE EXISTING ASPHALT CURB TO SUIT FINAL ROAD ELEVATION.
11. REMOVE ORGANIC MATERIAL IN AREAS OF ROAD FEATURES INCLUDING MANHOLES, VALVE BOXES & CATCH BASINS TO SUIT FINAL ASPHALT ELEVATION.
12. INSTALL WATER CONTROL CURB AT DRIVEWAY TELESCOPE TERRACE (TYP.).
13. INSTALL WATER SERVICE FOR FUTURE DEVELOPMENT C/W SERVICE BOX, CURB STOP AND SANITARY SERVICE TO ORIGINAL OR BETTER CONDITION (TYP.).
14. REPLACE EXISTING CURB CONDITION (TYP.)
15. CONTRACTOR SHALL ADJUST ALL SURFACE FEATURES INCLUDING MANHOLES, VALVE BOXES & CATCH BASINS TO SUIT FINAL ASPHALT ELEVATION.
16. INSTALL AND CONNECT WATER MAIN TO PROPERTY LINE AND CONNECT EXISTING SERVICE AS PER CONSTRUCTION REPRESENTATIVE.
17. REMOVE 50mm OF ASPHALT (COMPACTED) WITH 50mm OF ASPHALT (COMPACTED) FOR CONTINUATION, SEE 1733-05.
TELESCOPE TERRACE UTILITY UPGRADE

WATERMETER ASSESSMENT

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NOTES:

1. CONTRACTOR SHALL ADJUST ALL SURFACE FEATURES INCLUDING MANHOLES, VALVE BOXES & CATCH BASINS TO SUIT FINAL ASPHALT ELEVATION.

2. REMOVE AND DELIVER HYDRANT TO CON PUBLIC WORKS YARD.

3. REMOVE NELSON BOX.

4. CLOSE AND ABANDON GATE VALVE.

5. CONNECT TRENCH DAM '5$,172' & $/9(57 WITH:

   - '35(&$676(59,&( CONNECTION.

6. REMOVE AND DISPOSE OF EXISTING ASPHALT AND REPATCH ROAD WITH 50mm OF ASPHALT (COMPACTED THICKNESS). REVIEW BASE GRAVEL CONDITION WITH CON CONSTRUCTION REPRESENTATIVE AND REPLACE AS DIRECTED.

7. REMOVE AND DELIVER HYDRANT TO CON PUBLIC WORKS YARD.

8. CONNECT TO EXISTING MANHOLE AND GROUT CONNECTION WITH NON SHRINK GROUT. REBENCH MANHOLE AS REQUIRED.

9. CONNECT TO EXISTING MANHOLE AND GROUT CONNECTION WITH NON SHRINK GROUT. REBENCH MANHOLE AS REQUIRED.

10. REPLACE WATER SERVICE TO PROPERTY LINE AND CONNECT TO EXISTING SERVICE AS NOTED IN THE SUMMARY TABLE (TYP.)

11. VERTICAL DEFLECTION TO BE ACHIEVED OVER A MINIMUM OF TWO PIPE LENGTHS.

12. IF MINIMUM 0.45m SEPARATION CANNOT BE ACHIEVED, ENCASE WATERMAIN IN CONCRETE FOR 3.0m AS PER CON STD DWG. T-6 ALTERNATIVE 1.

13. SAWCUT EXISTING ASPHALT TO SUIT ASPHALT REPLACEMENT LIMITS.

14. REMOVE AND DISPOSE OF EXISTING REDUCER AND 2.0m OF AC SANITARY SEWER AND INSTALL SEWER DOWNSTREAM OF EXISTING MANHOLE. CONNECT TO (;,67,1*'$&0$,1:,7+ 1-200 PVCxAC COUPLING.

15. REPLACE WATER SERVICE TO PROPERTY LINE AND CONNECT TO EXISTING SERVICE AS NOTED IN THE SUMMARY TABLE (TYP.)

16. SAFETY INSTRUCTIONS:

   - CONTINUE TO WORK WITHIN THE WORK ZONE AREA AT ALL TIMES.

   - SEE WORK ZONEすることで安全に作業すること。

   - SEE WORK ZONEすることで安全に作業すること。

   - WORK ZONE内で作業する場合、安全におこなうこと。

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   - WORK ZONE内で作業する場合、安全におこなすこと。
NOTE:

1. CONTRACTOR SHALL ENSURE ADEQUATE NUMBERS OF ALL TRENCH, SUMP, FLOODING, LANDSCAPING, RETAINING STRUCTURAL, DRIVE, SIWNER, FENCE AND OTHER ITEMS ALONG THE ADVANCED UTILITY EASEMENT.

2. LANDSCAPE RESTORATION TO BE COMPLETED BY CONTRACTOR TO LEAVE VARIOUS LANDSCAPING AREAS TO BE STAINED OR APPLIED WITH DOWNSHED OR STAIN AS REQUIRED.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MINOR LANSCAPING AND INSTALLATION OF SIWNER MANHOLE AND INSTALL: SOME COBBLES GRAVEL (FILL) SAND & GRAVEL (TILL) BAKERY APPROVED BY THE CONTRACTOR TO MATCH THE COLOR OF THE EXISTING BUILDINGS TO DOCUMENT THE PRE-CONSTRUCTION CONDITIONS AND RECORD AND PRE-EXISTING DEFECTS.

4. CONTRACTOR TO EXCAVATE AND IMPORT MATERIAL COMPACTED DENSITY. SEE TYPICAL SECTION REMOVE EXISTING STORM AND SANITARY SEWER IN RIGHT OF WAY. SUBGRADE AT THE BASE OF THE TRENCHES IS TO BE BENCHED INTO ENDORSED BY THE HDPE PIPE MANUFACTURER WILL BE PERMITTED.

5. ALL PROPOSED OR DISTURBED LANDSCAPING AREAS 100mm BELOW FINISHED GRADE. IMPROVE SLOPE STABILITY OF THE TRENCH BACKFILL MATERIAL.

6. AFTER EXCAVATION FROM THE TRENCH LOCATION, A PROFESSIONAL SURVEYOR SHALL BE USED PRIOR TO PLACEMENT OF ENGINEERED FILL TO DETERMINE SLOPE STABILITY OF THE TRENCH BACKFILL MATERIAL.

7. ALL PROPOSED OR DISTURBED LANDSCAPING AREAS 100mm BELOW FINISHED GRADE. IMPROVE SLOPE STABILITY OF THE TRENCH BACKFILL MATERIAL.

8. CONTRACTOR TO REMOVE EXISTING SANITARY SERVICE AT PRIOR TO CONSTRUCTION EXPOSE AND LOCATE EXISTING SANITARY SERVICE. VIDEO INSPECT PIPE TO CONFIRM PIPE REBENCH MANHOLE TO SUIT. ACCESS AVAILABLE VIA 3170 SMUGGLERS HILL DRIVE.

9. CONTRACTOR TO REMOVE EXISTING SANITARY SERVICE AT PRIOR TO CONSTRUCTION EXPOSE AND LOCATE EXISTING SANITARY SERVICE. VIDEO INSPECT PIPE TO CONFIRM PIPE REBENCH MANHOLE TO SUIT. ACCESS AVAILABLE VIA 3170 SMUGGLERS HILL DRIVE.

10. CONTRACTOR TO REMOVE EXISTING STORM AND SANITARY SEWER IN RIGHT OF WAY. SUBGRADE AT THE BASE OF THE TRENCHES IS TO BE BENCHED INTO ENDORSED BY THE HDPE PIPE MANUFACTURER WILL BE PERMITTED.
UNDISTURBED GROUND

MANHOLE BASE TO BE CAST UPON UNDISTURBED GROUND

HAREWOOD & WAKESIAH
EL: 73.585

SIXTH & WAKESIAH

PER CON STD DWG.
BENCH MANHOLE AS S-1 & SW-15

DR26

4-15m SEE REINFORCEMENT DETAIL (TYP.)

COVER (NO CARRIAGE BOLT)

VENTILATED MANHOLE COVER (NO CARRIAGE BOLT) FOR STORM MANHOLE (ONLY)

FINISHED GROUND

MANHOLE BARREL + 300mm HIGH CAST INTO BASE

6-10m SEE REINFORCEMENT DETAIL (TYP.)

MANHOLE BARREL TO ST-15

PRECAST MANHOLE BASE TO BE CAST UPON UNDISTURBED GROUND

Bench Manhole A & B PER CON STD DWG. B - 3.1

CAST IN PLACE GRANULAR BASE

77H5260

UNDISTURBED GROUND

MANHOLE BASE TO CAST UPON UNDISTURBED GROUND

HDPE STUB C/W FUSION BONDED EPOXY BACKING RING (TYP)

PER CON STD DWG.
BENCH MANHOLE AS S-1 & SW-15

BENCH MANHOLE A & B PER CON STD DWG. B - 3.1

MANHOLE BASE TO BE CAST UPON UNDISTURBED GROUND

Diameter 450mm

0.90

0.45

0.15

MIN

0.15

0.05

MIN

0.15

0.05

MIN

0.15

MIN

FINISHED GROUND

W 22733-06

Horiz.

Scale

5220.01.C1927

PROFILE

20 MPa AT 28 DAYS CONCRETE

20 MPa AT 28 DAYS CONCRETE

FILTER CLOTH (COVER ROCK TO STORM SEWER OR DAYLIGHT.

FILTER CLOTH (COVER ROCK TO STORM SEWER

ALTERNATIVE 2

ALTERNATIVE 1

PROFILE

TRENCH DAM DETAIL

PROPOSED TRENCH DRAINAGE TO AN ACCEPTABLE WATERCOURSE OR STORM COLLECTION SYSTEM FROM EVERY TRENCH DAM.

CONSTRUCTION EQUIPMENT, WET, PRE-MIXED CONCRETE FILLED INTO BASE

HDPE FUSION SADDLE (TYP)

HDPE STUB C/W FUSION BONDED EPOXY BACKING RING (TYP)

PROPOSED TRENCH DRAINAGE TO AN ACCEPTABLE WATERCOURSE OR STORM COLLECTION SYSTEM FROM EVERY TRENCH DAM.

CONSTRUCTION EQUIPMENT, WET, PRE-MIXED CONCRETE FILLED INTO BASE

HDPE FUSION SADDLE (TYP)

HDPE STUB C/W FUSION BONDED EPOXY BACKING RING (TYP)

filtro CLOTH (COVER ROCK TO STORM SEWER OR DAYLIGHT.

FILTER CLOTH (COVER ROCK TO STORM SEWER

ALTERNATIVE 2

ALTERNATIVE 1

PROFILE

TRENCH DAM DETAIL

PROPOSED TRENCH DRAINAGE TO AN ACCEPTABLE WATERCOURSE OR STORM COLLECTION SYSTEM FROM EVERY TRENCH DAM.

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ALTERNATIVE 2

ALTERNATIVE 1

PROFILE

TRENCH DAM DETAIL

PROPOSED TRENCH DRAINAGE TO AN ACCEPTABLE WATERCOURSE OR STORM COLLECTION SYSTEM FROM EVERY TRENCH DAM.

CONSTRUCTION EQUIPMENT, WET, PRE-MIXED CONCRETE FILLED INTO BASE

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HDPE STUB C/W FUSION BONDED EPOXY BACKING RING (TYP)

PROPOSED TRENCH DRAINAGE TO AN ACCEPTABLE WATERCOURSE OR STORM COLLECTION SYSTEM FROM EVERY TRENCH DAM.

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ALTERNATIVE 2