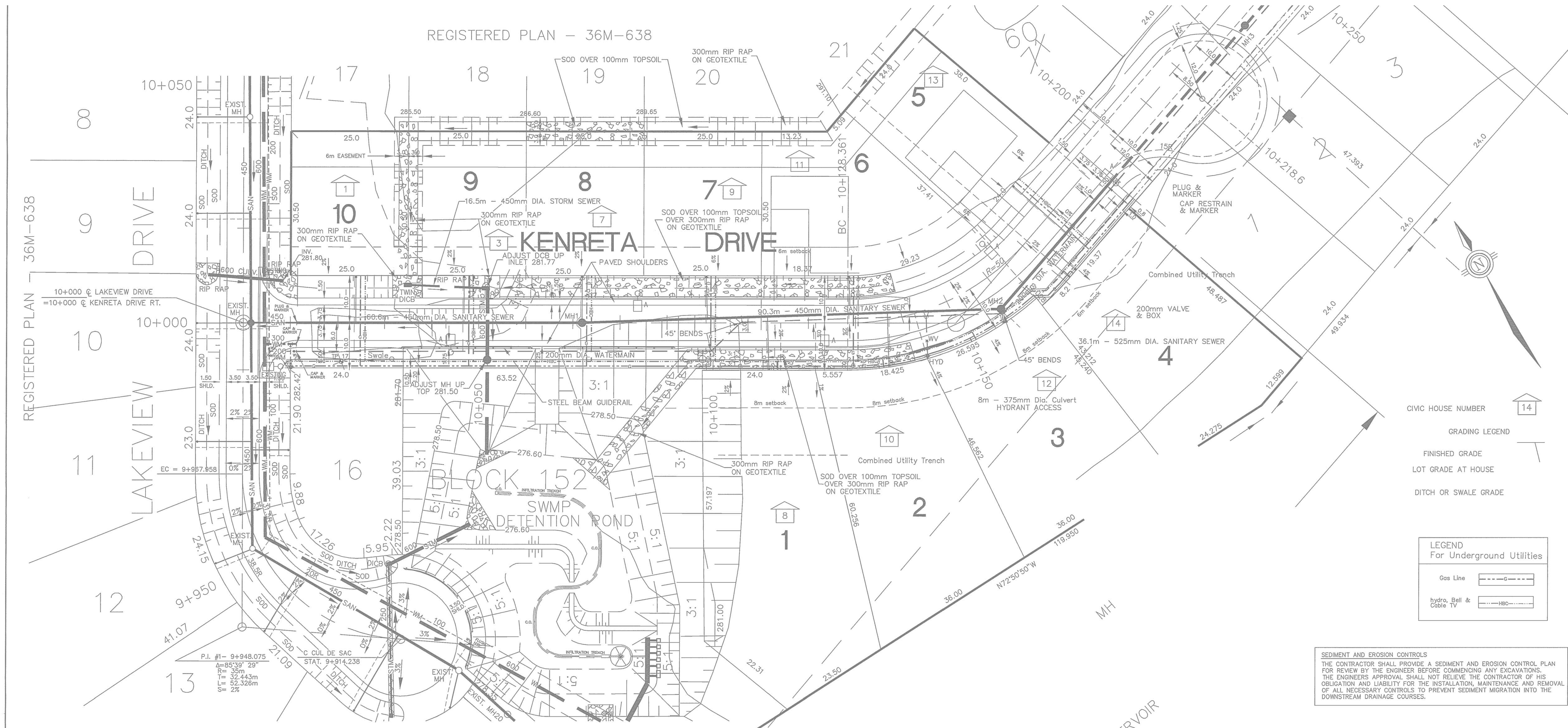




METRIC

NOTES:

STREET GRADING:

a) SUBGRADE GRADING IN ACCORDANCE WITH OPSS 206 AND OPSS 200.010 COMPACTED TO 98% SPD.

b) SUBBASE IN ACCORDANCE WITH OPSS 314 AND OPSS 206.01.

c) BASE IN ACCORDANCE WITH OPSS 314 AND OPSS 206.01.

d) ASPHALT PAVEMENTS IN ACCORDANCE WITH OPSS 310.

e) ASPHALT MATERIALS SHALL CONSIST OF HOT MIX HL4 SURFACE COURSE AND HOT MIX HL4 BINDER COURSES.

f) SUPPLIER TO BE A M.T.O. CERTIFIED PLANT.

MINIMUM MARSHALL FLOW SHALL BE 8 UNITS OF 0.25mm AT 3.5 % AIR VOIDS.

ASPHALT SHALL BE PERFORMANCE GRADED (PG) GRADE 58-34.

SEWERS

a) MAINS - POLYVINYL CHLORIDE (PVC), CLASS DR 35, TYTON JOINT.

b) STORM MAINS (INCLUDING CATCH BASIN LEADS) - POLYETHYLENE GLASS DR 35, OR HIGH DENSITY POLYETHYLENE (HDPE), OR REINFORCED CONCRETE CLASS IV WITH SMOOTH INSIDE WALLS AND GASKETED BELL AND SPIGOT JOINTS.

c) CATCH BASIN LEAD CONNECTION TO MAINS WITH "TEE" OR AN APPROVED SADDLE.

d) HOUSE SERVICE PIPE - POLYVINYL CHLORIDE (PVC) CLASS DR 28, TYTON JOINT.

e) CLASS "B" BEDDING (OPSS 802.030) WITH BEDDING MATERIAL GRANULAR "A", COVER MATERIAL GRANULAR "B" TYPE "1" AND NATIVE BACKFILL.

f) ALL IN ACCORDANCE WITH OPSS 410.

STRUCTURES

a) MANHOLES - PRECAST CONCRETE - 1200mm DIAMETER (OPSS 701.010), WITH MONOLITHIC BASE AND TYPED TOP WHEN DEPTH PERMITS.

b) CATCH BASINS - PRECAST CONCRETE - SINGLE INLET - 600 X 600 (OPSS 705.010), TWIN INLET - 600 X 1450 (OPSS 705.020), TWIN DITCH INLET 100 X 1200 (OPSS 705.040), FRAME AND COVERS - MANHOLES OPSS 401.01 - TYPE A, CATCH BASINS OPSS 400.01 AND OPSS 400.02.

c) ADJUSTMENT UNITS (3 LAYERS MIN, 8 LAYERS MAX.) - OPSS 704.010 - GROUT OUTSIDE ONLY.

d) STREPS - OPSS 405.010 - CIRCULAR ALUMINUM - IN MANHOLES ONLY.

e) FROST STRAPS - OPSS 701.100 (MODIFIED TO 3 STRAPS AT 120 DEGREES ON MANHOLES) (2 STRAPS ON JOINTED CATCH BASINS).

f) BENCHING - OPSS 701.021 (SANITARY MANHOLES ONLY).

WRAPPING (MANHOLES AND CATCH BASINS) - DOUBLE 4 MIL POLYETHYLENE.

BEDDING 150mm GRANULAR "A".

BACKFILL WITH GRANULAR "B" TYPE "1".

ALL IN ACCORDANCE WITH OPSS 407.

WATERMAINS

a) MAINS (INCLUDES HYDRANT LEADS)

b) POLYVINYL CHLORIDE (PVC), CLASS 150 OR DUCTILE IRON CLASS 52 MORTAR LINED (M.L.) OR DUCTILE IRON PRESSURE CLASS 350, M.L.

c) FITTINGS SHALL BE DUCTILE IRON, M.L. WITH MECHANICAL JOINT.

d) CORROSION PROTECTION IS REQUIRED ON ALL DUCTILE IRON PIPE AND FITTINGS AND SERVICES.

e) PROVIDE TRACER CABLE (BRAIDED #4 COPPER, COATED) ALONG ALL PVC WATER MAINS.

f) TERMINATE TRACER CABLES AT VALVE BOX TOPS AND AT ABOVE GROUND HYDRANT FLANGE.

THRUST BLOCK (OPSS 1103.010) ALL BENDS, TEES AND ENDS - PROVIDE POLY SEPARATION BETWEEN CONCRETE AND FITTING.

CLASS "B" BEDDING (OPSS 802.030) WITH BEDDING MATERIAL GRANULAR "A", COVER MATERIAL GRANULAR "B" TYPE "1" AND NATIVE BACKFILL.

DOUBLE SWAB ALL WATERMAINS.

PRESSURE TEST ALL WATERMAINS AT 1050 KPa.

DISINFECT ALL WATERMAINS AND FITTINGS AND PROVIDE BACTERIAL TEST PROOF.

ALL IN ACCORDANCE WITH OPSS 701.

c) WATER VALVES SHALL BE GATE VALVES BY CANADA VALVE OR GLOW CANADA ANVA C509-80 AND BE STANDARD BODY, BRONZE MOUNTED WITH INSIDE SCREW AND BE RESILIENT SEATED, HAVE NON-RISING STEM WITH MECHANICAL JOINTS AND OPEN COUNTER CLOCKWISE.

d) SEAT VALVE ON POURED OR PRECAST SLAB (REINFORCED PATIO STONE).

e) VALVE BOXES SHALL BE CAST IRON, BITUMINOUS COATED AND TWO PIECE SLIDING TYPE (ADJUSTABLE FOR 500mm MIN.), THE BOTTOM SHALL HAVE A VALVE BONNET WITH ALIGNER, CAP WITH "WATER" INSCRIBED ON IT.

f) DOUBLE WRAP VALVE BOX WITH 6 MIL POLYETHYLENE.

WRAP BONNET AND VALVE WITH GEOTEXTILE (NON-WOVEN, F.O.S.150 TO 210um, CLASS II).

BACKFILL VALVE BOX WITH GRANULAR "B" TYPE "1".

g) WATER SERVICE PIPE SHALL BE "TYPE K" COPPER 20mm DIA.

DISCLAIMER

The information contained on this drawing may be based upon data provided by others and may not have been verified by either as-constructed drawings or an Ontario Land Surveyor. The City of North Bay cannot accept responsibility for any errors or omissions on any information shown herein. Field verification, land surveys or excavation (with City approvals) may be required to determine actual location of any and all utilities or property lines.

NOTES: actual location of any and all utilities or property lines.

1. MAINTAIN 2.5m COVER ON WATERMAINS AND FORCEMAINS TO 5m FROM CONNECTIONS TO EXISTING FACILITIES.

2. SANITARY SEWER PIPE IN A COMBINED TRENCH WITH A WATERMAIN SHALL BE OF A PRESSURE CLASS OF PIPE AND WITHSTAND PRESSURE TESTING OF 350 KPa.

3. WHERE A WATERMAIN CROSSES ABOVE A SEWER AND WITHIN 150mm, THE WATERMAIN SHALL BE BEDDED WITH LEAN CONCRETE THE FULL WIDTH OF THE WATERMAIN TRENCH AND TO A MINIMUM DISTANCE OF 1m FROM THE CENTRELINE OF THE SEWER.

4. WHERE A WATERMAIN CROSSES BELOW A SEWER 0.50m MINIMUM CLEAR SEPARATION MUST BE MAINTAINED. ALSO THE WATERMAIN COVER MATERIAL IS TO EXTEND UP TO THE BOTTOM OF THE SEWER BEDDING FOR THE FULL WIDTH OF THE WATERMAIN TRENCH, AS WELL KEEP PIPE JOINTS IN BOTH SEWER AND WATERMAIN AS FAR APART AS IS PRACTICAL FROM THE CROSSING.

5. THE LOCATIONS OR COMPLETENESS OF EXISTING UTILITIES (ABOVE AND BELOW GROUND) AS SHOWN IS APPROXIMATE. EXCAVATIONS TO VERIFY LOCATIONS OF SUCH UTILITIES MAY BE NECESSARY TO DETERMINE THEIR EXACT LOCATIONS.

LEGEND

For Underground Utilities

Gas Line - ---G---

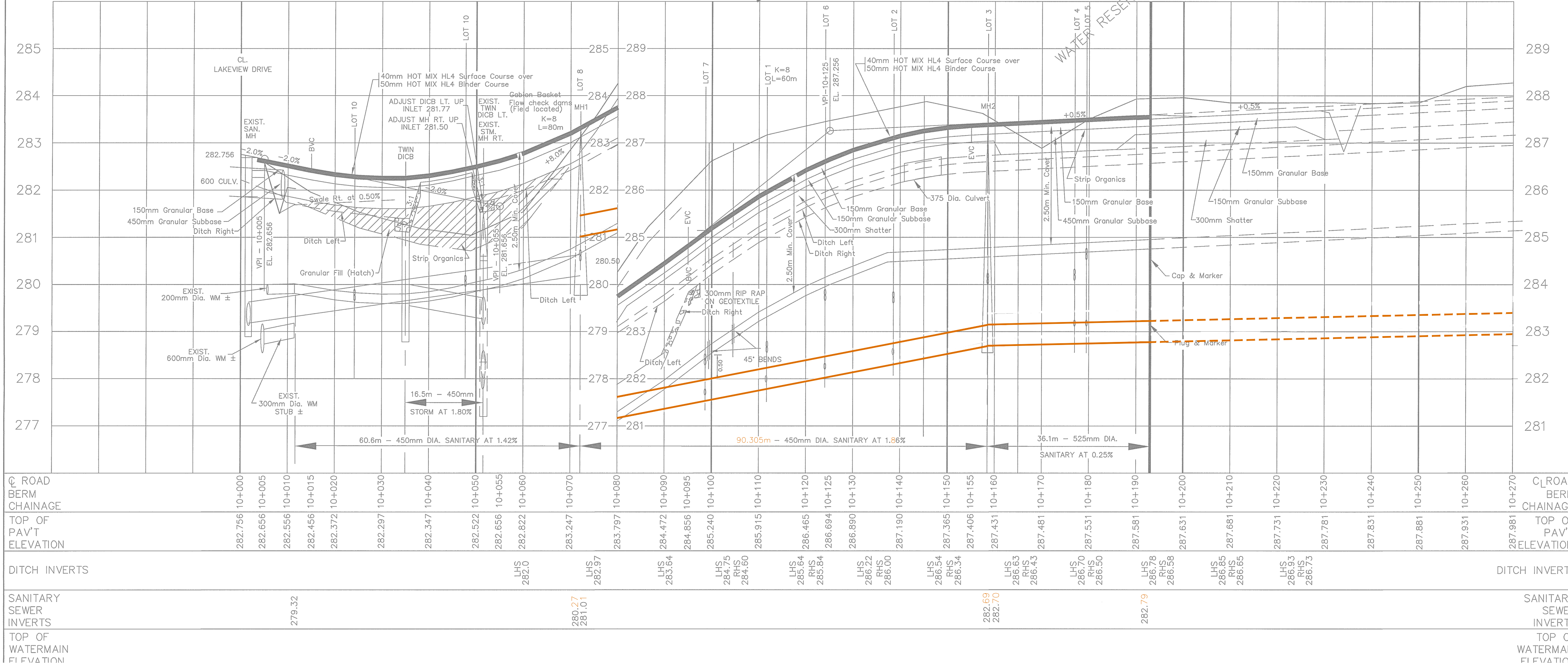
hydro, Bell & Cable TV - ---HBC---

Grading Legend

FINISHED GRADE - ---F---

LOT GRADE AT HOUSE - ---L---

DITCH OR SWALE GRADE - ---D---



LAURENTIAN HEIGHTS LTD.

KENRETA DRIVE PHASE 1

PLAN AND PROFILE LAKEVIEW DRIVE TO 270m EAST

northland engineering limited

Consulting Engineers and Planners

RECOMMENDED BY **APPROVED BY**

DRAWN BY: R.E.A./G.L.H. **DATE:** NOVEMBER 2005

CHECKED BY: R.E.A. **SCALE:** 1 : 500

CAD FILE: KENRETA P&P

OFFICE: NORTH BAY **PROJECT No:** 4867 **DRAWING No:** K-426 **REV.** 0